

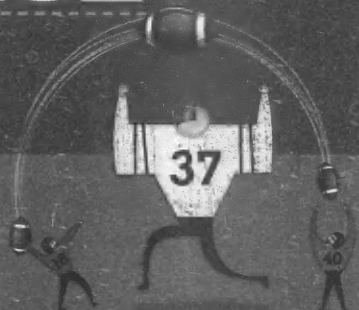
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AUGUST 23, 2004 • VOL. 38 • NO. 34 • \$5/COPY

WI-FI PLAYS DEFENSE

SECURITY The new 802.11i security standard will help, but protecting wireless LANs remains a very complex job. Here's why. **PAGE 19**



J.D. Edwards Users Still Aren't Sold on PeopleSoft's Takeover

Customer base cites 'mixed bag' one year into new ownership

BY MARC L. SONGINI

Twelve months after it paid \$1.8 billion to buy business applications rival J.D. Edwards & Co., PeopleSoft Inc. has yet to get a big sales boost from the deal or anything close to the kind of acclaim it had hoped to receive from the users it inherited.

Based on interviews with 15 J.D. Edwards users and an informal poll of 48 IT managers that was conducted last week, PeopleSoft is far from winning over its new customer base.

Five of the users who were interviewed said unequivocally that life with PeopleSoft is better than it was under J.D. Edwards. But several said it's worse in at least some aspects, and the others indicated that they're still on the fence about the acquisition.

The poll of *Computerworld* subscribers reflected even sharper attitudes toward the buyout, which PeopleSoft completed last Aug. 29 by purchasing the remaining J.D. Edwards shares that it didn't already own. Twenty-one of the J.D. Edwards users who responded said PeopleSoft's takeover has had a negative effect on them, while six said the deal has been positive. In addition, 29 of the respondents said they would have preferred that J.D. Edwards remain independent. Ten voiced support for the company being acquired.

"It's a mixed bag," said J.D. Edwards user Fredrick Pond, referring to PeopleSoft's ownership. "They are our key ven-

PeopleSoft, page 13

PeopleSoft's Viewpoint

Q&A: PeopleSoft exec Ram Gupta says J.D. Edwards users now have more product choices and better support. **PAGE 13**

HP Rushes to Fix Order System, Reassure Users

Vendor says 'worst is behind us' on shipment snafus caused by rollout of supply chain apps

BY PATRICK THIBODEAU
CHICAGO

Hewlett-Packard Co. engaged in damage control at HP World last week, telling users it's working in "war room" fashion to fix the order-processing problems that have affected its shipments of servers and storage devices. HP also said its weak third-quarter results aren't a harbinger of any changes in its technology road map.

Joe Nadler, a director in HP's enterprise systems unit, told customers at one conference forum that the company expects its server and storage supply chain "to be just about fully recovered by the end of August."

"There's aggressive plans in

place to make sure we catch up on late customer orders, and unfortunately, we did have some significant delays," Nadler said. But he added that the problems have been identified. "We're now completing the fixes," he said.

ONLINE
Sun postpones its SunNetwork conference: QuickLink 48914

Among the users on the receiving end of the order-processing problems was Patrick Slattery, a systems manager at IDX Systems Corp. in South Burlington, Vt. Slattery ordered two Intel-based ProLiant servers from HP last month. But IDX, which develops software for health care providers, is still awaiting the delivery of the systems.

HP World, page 41

Utility to Make IT Framework Open-Source

Hopes other users will improve its work

BY CAROL SLIWA

Duke Power Co. plans to go from consumer of open-source software to contributor on Sept. 1 by making an internally developed application framework available to other

companies through the SourceForge.net Web site.

The Charlotte, N.C.-based power company spent about 1,000 hours over the course of a year building its framework, which supports development of applications built around Microsoft Corp.'s .Net technology. By turning the framework over to the open-source community, Duke hopes that other corporate developers will improve on its work.

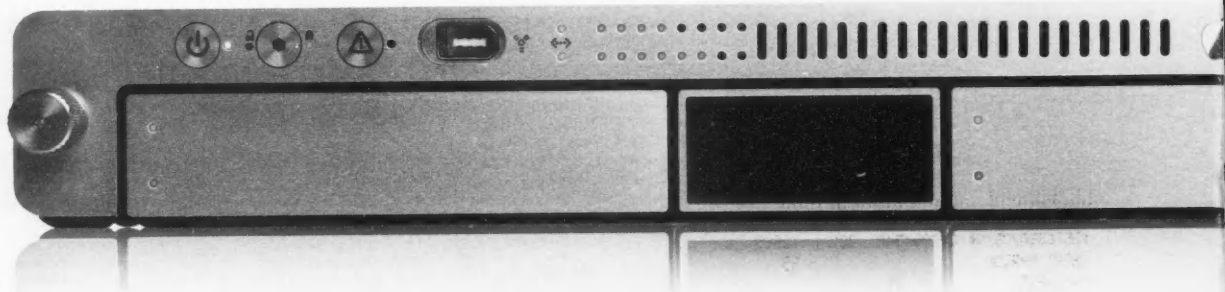
"This is somewhat of an experiment to see how much

Duke, page 9

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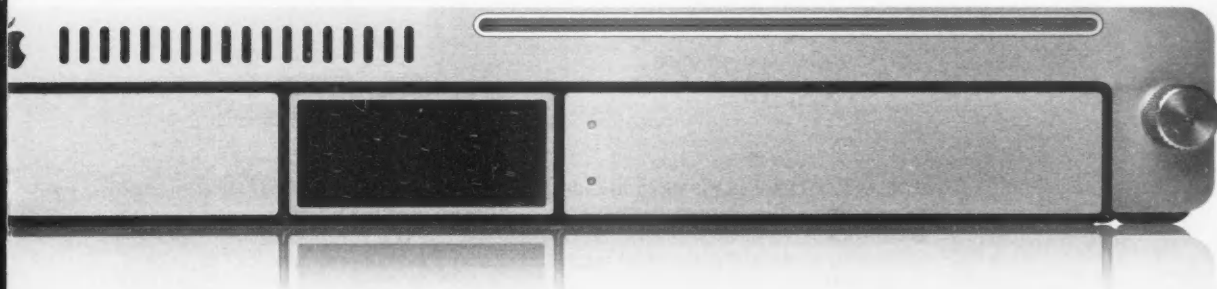


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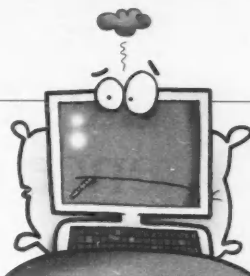
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CONTENTS

08.23.04

Backing Up the Edge

In the Technology section: Thanks to data replication and disk-to-disk backup technologies, IT is increasingly redirecting remote office backups to the data center, where they can be more easily and reliably managed. **Page 22**



Rx for Success

In the Management section: Why do doctors resist hospital safety technology? Because it disrupts workflow and slows them down. Here's how to get safety systems right and motivate doctors to give them a try. **Page 27**

NEWS

- 6 **Intelligence agencies need** a technology blueprint and better systems integration if a proposed overhaul is to succeed, officials testify during congressional hearings.
- 7 **Hurricane Charley** didn't catch IT managers unprepared, but recovery efforts were complicated by telecommunications deficiencies.
- 7 **Ford abandons an Oracle** procurement system after four years in favor of a "proven" set of custom-developed mainframe applications.
- 8 **EDS gets sued** by the U.K.'s largest satellite TV broadcaster over a CRM development deal that was terminated in 2002. But the IT services firm says it will file a countersuit.
- 8 **Hewlett-Packard plans** to offer a service to help IT managers scan and remediate security vulnerabilities in network devices.
- 9 **Motorola completes** the latest phase in a rollout of information life-cycle management software in its PCS unit's North American operations, as part of an effort to cut the size of its production databases.
- 12 **Many IT contracts fail** to include performance criteria and "guarantees" from vendor sales pitches, say experts.
- 12 **Microsoft tries to appeal** to mainframe and iSeries users with an upgrade of its Host Integration Server software.

TECHNOLOGY

- 19 **Wi-Fi Plays Defense.** The new 802.11i wireless LAN security standard is a big step forward, but Wi-Fi LANs still have some vulnerabilities.
- 24 **Future Watch: Software Flight Plan.** Paul D. Nielsen used to run a \$3 billion research lab for the U.S. Air Force. In his new role as CEO of Carnegie Mellon's Software Engineering Institute, the retired general explains how his experience will benefit the SEI's development projects.
- 25 **Security Manager's Journal: Antivirus Service Troubled by TLS.** A complex Transport Layer Security deployment gets messier when an antivirus service is added to the mix.

MANAGEMENT

- 30 **IT Survival Guide.** Forty years in IT have taught Ace Hardware CIO Paul Ingevaldson a thing or two, and in this valediction, he shares some nuggets with his IT colleagues.
- 31 **No Free Lunch.** Open-source software is free — or is it? It comes with rights and obligations, and attorney Larry Rosen says IT managers need to understand both.
- 32 **Career Watch.** Leveraging your skills; how project leaders really get picked; and IBM hits college campuses.



OPINIONS

- 10 **On the Mark: Mark Hall** looks at automated testing processes for remote users and a managed service for industrial controls monitoring.
- 14 **Maryfran Johnson** distills all of the IT management advice you'll ever hear into three simple mantras.
- 14 **Virginia Robbins** dislikes companies that are out to make as much money as possible in the short term.
- 15 **David Moschella** sees ramifications for workplace IT now that employees can get better gear on their own.
- 26 **Tommy Peterson** thinks a federal attempt at consolidating Americans' electronic health records is a worthy cause — and a daunting project.
- 33 **Edward Smith** advises against reacting to security threats defensively, because adding technology without a strategy can leave your organization more vulnerable.

- 42 **Frankly Speaking: Frank Hayes** notes that when it comes to negotiating with vendors, if you can't walk away from the table, you have no leverage at all.

DEPARTMENTS/RESOURCES

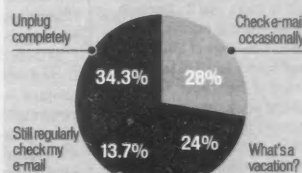
At Deadline Briefs	6
News Briefs	10, 12
Letters	15
IT Careers	34
Company Index	40
How to Contact CW	40
Shark Tank	42

ONLINE

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QuickPoll Results

When I'm on vacation, I...



SOURCE: Computerworld/non-scientific survey; 600 votes

Take this week's QuickPoll at www.computerworld.com

XP SP2: What You Need to Know

SOFTWARE: Windows XP Service Pack 2 could have some unexpected effects on your company's applications, mobile workers and more. Two Avanade consultants offer advice on how to prepare. **QuickLink 48954**

Seven Habits of Highly Effective ID Management

SECURITY: These identity management must-haves can help you choose the best system for your company, says Computer Associates' Bilhar Mann. **QuickLink 48182**

Blogsphere

See our editors' weblogs on security, careers, operating systems, mobile/wireless and more. **QuickLink a4000**

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AT DEADLINE

Nortel Plans Job Cuts, SAP Rollout

Nortel Networks Ltd. reported estimated financial results for the first half of this year and said it will lay off 10% of its workforce, or about 3,500 employees. To further cut costs, Nortel plans to install SAP AG's business applications throughout its operations and eliminate some of the 100-plus systems it now uses. The company also said CIO Albert Hitchcock now reports directly to President and CEO Bill Owens.

Brampton, Ontario-based Nortel, which is restating its earnings back to 2001, said it expects to file full financial reports for the first two quarters of 2004 and revised figures for all of last year by the end of September. The networking equipment vendor also disclosed that it has fired seven finance executives and that the Royal Canadian Mounted Police is launching a criminal investigation into its accounting practices.

Oracle to Adopt Monthly Patching

Oracle Corp. said it's moving to a monthly release cycle for software patches, similar to the approach that Microsoft Corp. adopted last fall. In a statement announcing the plan, Oracle said that switching to a more predictable patching schedule "is the right thing for our customers." The company didn't say when it expects to begin the monthly patch releases.

Short Takes

SAP today will announce that the U.S. Postal Service plans to install its human resources software to support the agency's 700,000 workers. The SAP applications will replace homegrown systems that are 25 years old. . . . ORACLE said it expects within the next three months to roll out a delayed set of business applications tailored for midsize users in the U.S. The software was initially due to ship last year.

IT Hurdles Complicate Intelligence Overhaul

Technology blueprint, better integration needed to support melding of agencies

BY DAN VERTON

APPROXIMATELY one year after the formation of the Department of Homeland Security — which was the largest reorganization of the federal government in 50 years — the U.S. intelligence community is facing a similar overhaul that some fear could threaten the meager progress made so far on information sharing and IT integration.

The recently released 9/11 Commission Report outlines a stinging indictment of the government's information-sharing efforts and calls for the appointment of a national intelligence director with full budgetary authority over the country's 15 intelligence agencies and departments. A series of congressional hearings last week focused on the long-term impact that major organizational changes might have.

In conjunction with the pos-

sible creation of a Cabinet-level intelligence director's post, the Bush administration is preparing to establish a National Counter Terrorism Center, which could incorporate the CIA's Terrorist Threat Integration Center and other personnel from that agency. But questions about lines of authority, IT systems integration and a host of other issues have TTIC Director John Brennan concerned.

Any information-sharing system must be "based on a clear understanding of who is responsible for what," Brennan told members of the House Select Committee on Homeland Security. There also has to be an overall blueprint for IT investments, including strategic prioritization, interoperable hardware and software, and role-based data access, Brennan said.

Even without the confusion that might arise from organi-

zational changes, homeland security and intelligence agencies are struggling to overcome IT problems, Brennan

added. The issues he cited include "a plethora of legacy information systems and networks . . . [that] impede interoperability."

Brennan noted that TTIC analysts use 22 federal networks that are divided into "sanctums," which let them access data only on a need-to-know basis. Smashing organizational stovepipes is important, but "it's not sufficient to share hard-copy information," he said.

Some members of Congress also fear that the proposed changes might complicate the DHS's ongoing effort to connect state and local officials to the new Homeland Security Information Network.

Two weeks ago, the DHS hosted a gathering of more

than 300 state and local officials in Washington to train them to handle classified federal information that will be made available on the network, said Patrick Hughes, assistant secretary for information analysis at the DHS. The network is currently being deployed and should be fully in place by year's end, he added.

Even so, "I don't think we have licked the problem of complete coordination between the federal government and with the state and local government and private-sector customers for finished intelligence," said committee chairman Rep. Christopher Cox (R-Calif.).

At the FBI, there is still a basic need for secure communications, said Maureen Baginski, the agency's executive assistant director for intelligence. "Our biggest need is secure communications to our field offices and for secure [communications facilities]," she said. "In order to join this large intelligence community and be a healthy node on this network, we have to be able to operate in the environment." **48963**



PATRICK HUGHES says the DHS will finish the rollout of a homeland security information network this year.

Two Reports Criticize DHS For Lack of Progress on IT

As the debate about adding a national intelligence director proceeds, two government reports are shedding new light on an existing dilemma: If DHS CIO Steven Cooper can't wrestle that agency's sprawling bureaucracy into submission, can any IT manager be expected to help fix the nation's problems with sharing of information about terrorism?

In July, the DHS inspector general issued a report concluding that Cooper didn't have the political clout needed to develop an enterprise architecture integrating the IT systems of the 22 agencies within the DHS.

Cooper "is not a member of the senior management team

with authority to strategically manage departmentwide technology assets and programs," the inspector general's report said. It added that there is no formal reporting relationship between Cooper and the CIOs of major DHS divisions.

In another report that was submitted to Congress on Aug. 6 and made public last week, the Government Accountability Office (GAO) found that the DHS "does not yet have the necessary architectural blueprint to effectively guide and constrain its ongoing business transformation efforts and the hundreds of millions of dollars that it is investing in supporting information

technology assets."

According to the GAO, the DHS's IT blueprint "is missing most of the content necessary to be considered a well-defined architecture." The GAO described it as "the result of an amalgamation of the existing architectures that several of DHS's predecessor agencies already had."

In a written response to the inspector general's report, DHS deputy secretary Adm. James Loy disagreed with the recommendation that Cooper should be part of the senior executive team reporting directly to him. The CIO is "already an integral member at each level of the IT investment review process," Loy wrote.

The DHS acknowledged the problems with its enterprise architecture in a response to the GAO's report. But the agency

added that the GAO had measured its progress against "unrealistic" expectations of how comprehensive the first version of the architecture would be.

Sateesh Lele, a former CIO at Avon Products Inc. and General Motors Corp.'s European operations, said the federal government desperately needs a cultural change. Lele, who is chairman of San Jose-based IT services firm Global Data Systems USA, noted that he has seen the same problems in the private sector.

"I have seen innumerable examples of this organizational malaise in extremely large organizations, and I have also seen some tough actions from the top which have fixed the problem," he said. "This is not an IT problem. It is a cultural problem."

— Dan Verton

In Storm's Wake, Fla. IT Managers See Need For Telecom Upgrades

Communications problems complicate recovery efforts after Hurricane Charley

BY LUCAS MEARIAN

As Hurricane Charley blew through Port Charlotte, Fla., on Aug. 13, Kathleen Russell stood in a dark closet 15 miles away with a flashlight in one hand and a cell phone in the other. She was trying to find out if the databases at the insurance agency where she works could be restored in time to handle claims from its 15,000 customers.

Russell's company, Key Agency Inc. in Englewood, Fla., had contracted with a disaster recovery services firm to replicate its customer data to a backup facility in Massachusetts. Workers there were able to restore the agency's data within 10 hours. "That to me just boggles the mind," said Russell, Key's office manager.

IT managers in the areas hit

by Charley said last week that although the storm took an unexpected path through the center of the state, they weren't wholly unprepared because of lessons learned from Hurricane Andrew 12 years earlier. For example, they said, Andrew taught them to geographically disperse their data center operations.

But Charley taught some new lessons, such as the need to improve communications.

Dennis Klinger, CIO at Florida Power & Light Co. in Juno Beach, said 800,000 of the utility's 4.1 million customers in western and southern Florida were without power last week. Recovery operations were going remarkably smoothly because of an abundance of planning and past experience, Klinger added.

But there were some things that Klinger hadn't counted on. "We use various cell and wireless providers," he said. "All of them experienced some very serious damage." Broken connectivity between cellular towers hampered the ability of the utility's emergency crews to communicate, he said.

Florida Power & Light's 800 IT workers had several means of communication, including radios, cell phones and satellite-based phones. But Klinger said they experienced bandwidth-clogging traffic levels, particularly with the satellite phones. "We need to look at more reliable and wider-bandwidth satellite communications that we can implement more quickly," he said.

Marvin Shumacher, director of information systems at Heart of Florida Regional Medical Center in Davenport, just outside Orlando, said last-mile network issues affected communications at the hospital. The electric-powered copper wires running into the building were knocked out of service by the storm, he said.

But the hospital's network, data center and radiology imaging systems remained



HURRICANE CHARLEY leveled buildings in Port Charlotte and other parts of Florida and left up to 1 million people without power.

online, running off of rack-mounted battery units from American Power Conversion Corp. in West Kingston, R.I., while backup power generators kicked in.

Heart of Florida's parent company, Health Management Associates Inc. in Naples, Fla., also operates Charlotte Regional Medical Center in Punta Gorda — the area that was hit hardest by Charley.

Because of the storm's erratic path, the Charlotte facility didn't have time to evacuate

73 patients or its staff before it hit, Shumacher said. Charlotte Regional lost power as well as its roof and the windows on its second and third floors.

But Health Management Associates replicates data from its hospitals to backup data centers in Atlanta and Boulder, Colo., according to Shumacher. Company workers used the backup data and portable generators to restore Charlotte Regional's systems by the middle of last week, he said. **48958**

Ford Abandons Oracle Procurement System

Switches back to mainframe apps

BY MARC L. SONGINI

Ford Motor Co. is pulling the plug on a 4-year-old procurement system based on Oracle Corp.'s software and switching all purchasing operations back to the mainframe applications that the newer technology was designed to replace.

Ford has invested unspecified millions of dollars in the system, which was dubbed Everest and built around Oracle's databases and business applications. But Ford spokesman Paul Wood last week confirmed that the automaker has decided to shut down Everest and return the purchasing processes that were being run on the system to a set of custom-written

mainframe applications. "We completed an evaluation of all the production and nonproduction procurement systems and made the decision to transition back to the proven, current system," Wood said.

Dot-Com Era Origins

The development of Everest began in 1999, at the height of the dot-com era. According to Wood, the project was separate from Covisint Inc., a Web-based business-to-business exchange for the automotive industry that Ford and Oracle helped create. Covisint is now owned by Compuware Corp.

Wood said Ford started to go live with the system in 2000. He declined to say how many suppliers or internal business units the system supports, but he noted that the technology is widely used in

some form throughout Ford.

Wood also wouldn't comment about any problems with the system. But sources indicated that Everest was hampered by poor performance.

Ford now plans to migrate some features from Everest to its mainframe system, using in-house developers. Wood said the company had continued to run the mainframe-based procurement software in tandem with Everest.

Oracle issued a terse statement about Ford's decision to send Everest to the scrap heap. "Oracle continues to support Ford on its back-to-basics strategic initiatives and IT projects," the statement said. "Given our desire to honor a nondisclosure agreement in effect, it would be inappropriate for Oracle to comment on any specifics." **48939**

Wi-Fi Hot Spots Keep Users Online

Public-access Wi-Fi hot spots have become a key alternative for business and personal communications in the wake of Hurricane Charley's devastating rampage across Florida.

For example, the Florida franchisee for Panera Bread Co. last week reported a 50% increase in traffic on the free Wi-Fi wireless LAN service offered in its 34 restaurants in the state. John Wetzel, director of operations in Florida for Warren, Ohio-based Covelli Family LLP, said he thinks that about seven in 10 of the Wi-Fi users at Panera Bread outlets in Florida are using the Internet connections for business.

"We have people holding business meetings in our stores," Wetzel said, noting that the loss of electricity and phone service has forced companies to resort to such measures.

People looking for Internet access are also seeking out independent Wi-Fi hot spot oper-

ators. Lee Lorenzo, general manager of the Village Inn in the Orlando suburb of Winter Park, said her restaurant had its power turned on last Thursday. Four customers were already using the restaurant's Wi-Fi connection, and Lorenzo had fielded calls from several other people wanting to know if the service was operational.

Nate Williams, who works as an event planner for an unidentified company, said he had just finished a three-hour Wi-Fi session at the Village Inn — the first time he had been able to log onto the Internet since the storm struck on Aug. 13.

T-Mobile USA Inc., which provides paid Wi-Fi hot spots for several national retail chains, offered free services in Florida through last Monday. But a T-Mobile spokesman wasn't able to provide usage data for the company's Wi-Fi outlets in the state.

—Bob Brewin

Broadcaster Sues EDS Over CRM Contract

U.K. satellite TV company claims firm failed to fulfill system development deal

BY MARC L. SONGINI

THE U.K.'S LARGEST satellite TV broadcaster sued Electronic Data Systems Corp. last week over a \$109 million CRM development contract that was signed in late 2000 and then terminated two years ago.

London-based British Sky Broadcasting Group PLC said it had filed a legal claim against EDS for "deceit, negligent misrepresentation and breach of contract" during the implementation of a CRM system designed to support operations at BSKyB's call centers. A company spokesman declined to disclose the amount of money that BSKyB is seeking from EDS.

BSKyB severed its relationship with EDS in early 2002 after the IT services firm "failed to perform its contractual obligations," according to a statement issued by the broadcaster last week. After the deal was ended, BSKyB subsidiary Sky Subscribers Services Ltd. took over integration work on the CRM project, which is expected to be completed "in the near future," the company said.

Contract Troubles

The lawsuit is another potential black eye for EDS, which has been struggling with problematic contracts such as its intranet deal with the U.S. Navy and an agreement to develop a voice-over-IP network for The Dow Chemical Co. Dow and EDS agreed to end their contract in July, and Dow this month named IBM to take over as lead contractor [QuickLink 48668].

EDS spokesman Malcolm George said the Plano, Texas-based company had yet to receive BSKyB's lawsuit. But he

added that EDS denies its former client's claims and is ready to fight in court. "We're going to vigorously defend our position, and there will be a counterclaim in the several millions of [British] pounds for unpaid bills," George said. "It's absolutely outrageous."

BSKyB said it filed the lawsuit after settlement discussions between the two companies failed. At issue is a system that was to be built around hardware from Sun Microsystems Inc. and CRM software from Cupertino, Calif.-based

Chordiant Software Inc., which specializes in business-to-consumer applications.

The BSKyB spokesman confirmed that the Chordiant software is still being used, but he declined to offer further details about the project. When the deal with EDS was announced in 2000, BSKyB said it planned to use the CRM system to integrate disparate data sources and create more comprehensive customer profiles. In addition, the company's subscribers would be able to access information such as account and billing data via phone calls, the Web or interactive TV services.

Although the contract with



BRITISH SKY BROADCASTING'S call center in Livingston, Scotland.

EDS was valued at \$109 million, BSKyB said in its statement that it has spent a total of \$310.8 million on software, systems integration, infrastructure costs and a revamp of its call center facilities. The company expects to spend another \$91 million during the next four years to finish the

rollout and maintain the CRM system for its subscriber base, which now stands at about 7 million. **48922**

CASE CLOSED

EDS and the U.K.'s National Health Service settle a dispute over another contract:

QuickLink 48890
www.computerworld.com

HP to Offer Vulnerability Scanning Service as Part of IT Security Push

Tools to let users find, fix flaws in network devices

BY JAIKUMAR VIJAYAN AND PATRICK THIBODEAU

Hewlett-Packard Co. last week said it plans by year's end to offer a security vulnerability scanning and remediation service that's designed to help companies identify and fix weak spots on their networks.

The as-yet-unnamed service will be based on technology called Active Countermeasures, which HP has been testing internally for more than two years, according to Tony Redmond, vice president and chief technology officer at the HP Services business unit.

The scanning tools will allow IT managers to identify flaws in any devices on their networks, including servers, PCs and "transiently" connected products such as handheld computers, Redmond said. It can also protect net-

works via measures such as installing patches, imposing network access restrictions or quarantining vulnerable or infected systems.

The move by HP will put it in a crowded field. IBM, Computer Associates International Inc. and IT security vendors such as Internet Security Systems Inc. and Qualys Inc. offer similar services or products for automated vulnerability assessment, discovery, remediation and reporting.

Whether HP would have an advantage over its rivals will depend on the specifics of its offering, said Rusty Robinson, a technical manager at Intrado Inc., a Longmont, Colo.-based provider of 9-1-1 infrastructure systems and services. HP "would just be one more company in the marketplace to get those services from," he said.

The fact that

HP is among the larger vendors to offer such a service is noteworthy, said David Krauthamer, director of information services at Advanced Fibre Communications Inc., a maker of telecommunications equipment in Petaluma, Calif. "The market has been pretty niched so far," Krauthamer said. "HP can certainly bring their clout and scale to the market."

Broad Access Needed

But the "fairly wide access" to internal systems that HP or other providers of such services would need makes the offering a no-go at Danfoss A/S, said Brian Andersen, a

systems programmer at the Denmark-based manufacturer of hydraulic systems, compressors and other industrial equipment. Danfoss does its own vulnerability test-

ing, a job it wants to keep in-house "so we know ourselves what's going on and how to fix it," Andersen said.

The new service isn't HP's first foray into IT security. Since last September, it has bought security tools through acquisitions of Baltimore Technologies Inc., Novadigm Inc. and TruLogica Inc.

But so far, HP has done a poor job of articulating how it plans to use the technologies to benefit users, said Pete Lindstrom, an analyst at Spire Security LLC in Malvern, Pa.

"HP could probably be a formidable player if they wanted to," Lindstrom said. But, he added, "HP seems to wax and wane in the security space." Less than a year after the Baltimore Technologies purchase, for instance, "you just don't hear about the technology anymore," he said.

Raymond said HP plans to roll out a suite of identity management tools next year based on technology from Baltimore and TruLogica. It also is setting up a Trusted Computing initiative designed to deliver securely configured hardware and software to users, he said. **48967**

HP seems to wax and wane in the security space.

PETE LINDSTROM
ANALYST, SPIRE SECURITY

Motorola Uses ILM Tools to Control Database Growth

Software migrates data off its servers to cut capacity needs, boost performance

BY LUCAS MEARIAN

Motorola Inc. last week said it has completed the second of four phases in a planned companywide rollout of information life-cycle management (ILM) software that has cut the size of production databases by as much as 50% in some business units.

The database reductions are enabling Motorola to stave off additional server and storage purchases as the company consolidates its hardware infrastructure by moving systems from remote locations to a data center in Chicago, said Bill Brewer, global IT configuration manager at Motorola's Personal Communications Sector (PCS) business unit.

The ILM rollout should also help Motorola better meet the financial reporting requirements of the Sarbanes-Oxley Act by keeping data online and easily accessible without eating up space on application servers, according to Brewer.

He declined to disclose the cost of the project, other than to say that it's a multimillion-dollar initiative.

Schaumburg, Ill.-based Motorola is using OuterBay Technologies Inc.'s Application Data Management software to manage data growth in ERP systems built around Oracle Corp.'s databases and E-Busi-

ness Suite applications, Brewer said. Historical customer account information is automatically migrated from production databases running on Sun servers to EMC Corp.'s Symmetrix disk arrays.

"As Oracle applications mature, you use more disk space ... so you will be taxing your database at a higher level," Brewer said. "There's only so

much tuning you can do. So it's either rip the data out or do something else."

Motorola has set the ILM software's policy engine to migrate data that hasn't been accessed by end users for 15 months. The PCS business unit initially rolled out Cupertino, Calif.-based OuterBay's software in its China operations in 2001 and was able to cut database sizes in half there.

The company completed the North America rollout of

the software in mid-July and plans to finish similar projects in European and South American operations by the end of 2005, Brewer said.

He added that the rollout in North America has boosted performance on the PCS unit's Oracle database servers by 62%, mostly as a result of the reduction in data.

At the Bleeding Edge

Ray Paquet, an analyst at Stamford, Conn.-based Gartner Inc., said database archiv-

ing products from companies such as OuterBay, Princeton Softech Inc. and Applimation Inc. are still on the bleeding edge of technology. But they're prompting a flood of inquiries from prospective users, he added.

Slow database throughput due to a glut of data is "a business problem, not a technology problem," Paquet said.

IT managers need to get the business side involved early on to decide issues such as what data should be archived, how long it should be kept and who can access it, Paquet advised. **C 48944**

Continued from page 1

Duke

value can be gained from the open-source community," said Charlie Ward, the utility's manager of technical architecture. He added that because Duke's developers have been active users of open-source software, they now want to give something back to open-source developers.

It's difficult to gauge how many other user companies have turned significant application development initiatives into open-source projects.

Patrick McGovern, director of SourceForge.net, said the site gets about 70 new open-source projects each day, but it doesn't track their lineage. He said what Duke is doing is "certainly not unique," but he couldn't provide an estimate of how many similar projects have been launched.

Earlier this year, Brunswick Corp.'s Web Den Interactive (WDI) technology subsidiary used SourceForge.net to release an open-source business-integration engine that it had built to help connect WDI's independent dealers. But Vernon Hills, Ill.-based WDI has now released its application integration tool as a commercial product, called Redberri, said a WDI spokesman.

Mark Driver, an analyst at Gartner Inc., said he has heard about individual programmers getting permission from their

employers to make software components available under open-source licenses. But Driver said he hasn't seen any major companies make significant portions of their custom development work open-source.

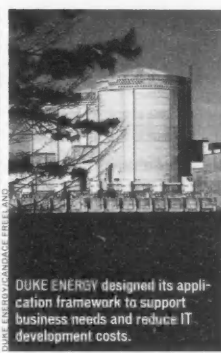
Many companies have been hesitant to release their work on an open-source basis because of intellectual property concerns, Driver said. He added that service and support are also issues because open-source projects require commitments of time and money. "What doesn't work is just dumping the software onto a developer portal," he said.

Thomas Murphy, an analyst at Meta Group Inc., also said that lots of companies have released pieces of their code to the open-source community. But he doesn't think many will push out frameworks like the one Duke is releasing. "Sharing your competitive differentiators normally is seen as a bad idea in commercial entities," Murphy said.

Seeking Support

But Duke doesn't view the framework as a competitive advantage. "Duke Power is not a software company. We're an energy company," Ward said. "We're more interested in getting continued support from the open-source community to improve our software."

The idea for the open-source contribution took shape as Duke began to define an enterprise-wide architecture to sup-



DUKE ENERGY designed its application framework to support business needs and reduce IT development costs.

port its business needs and reduce development costs, according to Ward. Duke wanted a common framework to enforce consistency, reduce the amount of work its developers need to do and help them transition from Microsoft's Visual Basic 6 to the object-oriented development tools they will use with the newer Visual Studio .Net technology.

The framework that Duke will release under the open-source Common Public License includes a data abstraction and data access layer; exception logging (built on Log4net open-source technology); EncryptionHelper, which aids in encapsulating encryption/decryption sequences; XMLHelper for serialization and deserialization of objects to and from XML and XML schema validation; SecurityHelper, for authenticating and authorizing against an Ac-

tive Directory domain; and an XMLMessage object.

In addition, Duke will release models and Unified Modeling Language diagrams that describe how the pieces can be used with .Net applications. Demonstration applications will also be included, as will Microsoft's freely available SQL Helper Data Access tool.

To spread the word about its open-source contribution, Duke plans to make a presentation next month before the 750-member Enterprise Developers Guild in Charlotte. Marc Ginns, a lead application developer at Duke, said the company already has received four pages of suggested additions and changes to the framework from guild members.

Bill Jones Jr., president of the guild and a software architect at Charlotte-based MetaLogix Inc., said a group of developers in the local Microsoft community are excited about the Duke project's potential to increase productivity. He said the "reference architecture" will let the developers focus on business logic instead of low-level plumbing.

"They've put together several key components common to most projects, whether Web or Windows," Jones said about Duke. "They worked out the architecture and thought through how things should work together. I won't say they've solved every problem, but they've solved a lot of the big ones." **C 48960**

Reasons for adopting ILM and database archiving tools

- Smaller database sizes can improve query performance.
- Database recovery times can be shortened because there is less data to restore.
- IT managers can keep fewer copies of databases, saving more storage space.
- Historical data can be kept online to help meet regulatory requirements.

BRIEFS

Microsoft Delays SP2 Updates . . .

Microsoft Corp. postponed the start of automatic distribution of Windows XP Service Pack 2 to corporate users after IT managers told the vendor that they needed more time to configure systems to block the update. Many companies, including IBM, want to delay installations of SP2 until they can test its compatibility with their applications (QuickLink 48777). Microsoft pushed back the launch of automated SP2 updates for Windows XP Professional from Aug. 16 to this Wednesday.

. . . And Discloses Possible App Issues

Microsoft has also published a list of nearly 50 applications and games that may not work properly after users install SP2. The list includes Microsoft products such as Systems Management Server 2003, plus software from Symantec Corp., Macromedia Inc. and Computer Associates International Inc. The conflicts involve a firewall built into SP2, Microsoft said.

CA Buys PestPatrol To Target Spyware

Computer Associates said it has acquired PestPatrol Inc., a Carlisle, Pa.-based developer of antispayware software, for an undisclosed price. CA plans to incorporate PestPatrol's products into its eTrust Threat Management software suite, which includes tools designed to protect corporate networks against viruses, spam and inappropriate use of the Web by employees.

McAfee to Acquire IT Security Vendor

In another security-related acquisition, McAfee Inc. in Santa Clara, Calif., said it's buying Foundstone Inc. for \$86 million in cash. Mission Viejo, Calif.-based Foundstone sells software for detecting and remediating software vulnerabilities.

ON THE MARK

HOT TECHNOLOGY TRENDS, NEW PRODUCT NEWS AND INDUSTRY GOSSIP BY MARK HALL



Remote App Testing Comes Home . . .

. . . for Starwood Hotels and Resorts Worldwide Inc., which is in the first phase of automating software testing for remote users of its homegrown and commercial applications. According to Mark Badeau, manager for enterprise QA, his quality assurance team was "challenged by the testing environment." That's an understatement. Software that was created or integrated centrally at the White Plains, N.Y.-based company often was destined to operate remotely at one of the 750 properties in 80 countries that Starwood manages. Getting the end users to put the programs through their paces without major logistics hassles was a pain. Enter Austin-based Surgent Inc. Its VQMS technology lets remote users access and work with an application through a browser as if the code were running locally. Pam Thornton, Starwood's director of software engineering, says she "was comfortable working with a young company because they had seasoned folks who understood and leveraged best practices for testing." In addition to the remote user access, Badeau praises VQMS because it lets him provision a test machine and lock it down, run the tests and then automatically

reset the system for the next operation. Reconfiguring and preparing a computer for a test once took hours but now takes just a moment or two, he says. Surgent CEO Bill Daniel says that later this year or early next, Starwood and others can use an upgraded VQMS with out-of-the-box integration with testing tools from Seque Software Inc., IBM's Rational division and Mercury Interactive Corp. Pricing starts at around \$25,000. But think of the money you save by not having to reprogram machines for every test. And those hotel bills from end users visiting the testing center will disappear.

Apple's Resurgence in Life Sciences May . . .

. . . polish its image for Wall Street IT users. That's a scenario painted by Jeff Augen, CEO of TurboWorx Inc. in Shelton, Conn. He contends that Apple Computer Inc.'s

high-end Macs have "a technological head start" over Intel-based machines because they're fully 64-bit and "really, really fast."

That head start appeals to organizations that demand high-performance, clustered systems. In the life sciences market, Augen foresees clusters of Macs (and Linux systems) using his company's TurboWorx Enterprise technology displacing multiprocessor Unix servers from Sun Microsystems Inc. and IBM. Michael Swenson, an analyst at Life Sciences Insights, an IDC company in Framingham, Mass., agrees.

"We see an uptick in interest in Apple" among life sciences users, he says. But Augen thinks Apple might leverage one success for another. He claims that financial services companies with high-performance computing needs are showing serious interest in TurboWorx Enterprise to deploy and manage CPU-cycle-sucking applications — even on clustered Macs with the Unix-based OS X operating system. That doesn't surprise Tom Barton. He's the CEO of Rackable Systems Inc. in Milpitas, Calif., whose clustered, high-performance computers appeal to the technically sophisticated users on Wall Street. And while he doesn't have a deal now for Macs to be used in his advanced low-power, thermal-managed racked systems, he "sees an opportunity to cooperate with Apple for the financial market."



AUGEN envisions Macs on Wall Street.

Industrial Controls Meet IT . . .

. . . in a new managed service from Betrusted Inc. The New York-based security service provider is teaming with industrial controls monitoring company Verano Inc. in Mansfield, Mass., to offer the latter's Industrial Defender as a managed service. Industrial Defender is a security-hardened Linux appliance that monitors the health of industrial machinery such as turbines. Verano CEO Brian Ahern says speculation about a "combination 9/11 plus the East Coast blackout is more than a bad dream." He argues that the nation's critical infrastructure suffers from "a gap as to who's responsible" when industrial control systems can be sabotaged over the Internet. Is it plant operations personnel or staff in the IT data center? Ahern suggests combining the roles through a managed security service. The integration of Industrial Defender's data and alerts into Betrusted's 10 global data centers will be complete in Q4.

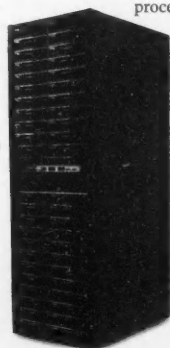
Rackable Scales Out . . .

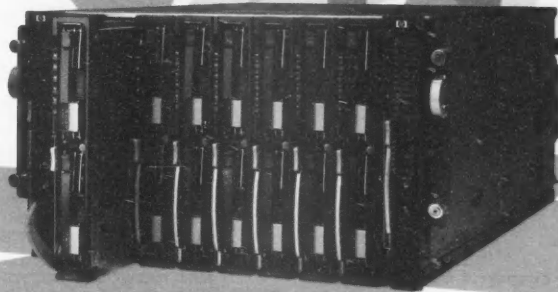
. . . its server line with up to 184 64-bit Intel CPUs in a single rack. Late this month, the Scale Out Server Series from Rackable Systems will add Intel Corp.'s Xeon 64-bit dual-processor chip sets to the 32-bit Xeon processors from Intel and

the 64-bit Opteron chips from Advanced Micro Devices Inc. that are already available. Rackable's unique cooling technology through the center of the rack lets you pack more processors per system than most. Pricing starts at \$2,800.

48636

Rackable's 184 well-cooled processors





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BRIEFS

SAP Warns Users About Phony Calls

SAP AG warned users of its applications not to provide confidential IT information to people who call them claiming to work for its technical support group. An SAP spokesman said several customers have received calls seeking data such as system access codes, on the premise that the information was needed to correct IT problems. He said SAP has little information about the callers.

IBM Asks Judge to Dismiss SCO Claim

IBM asked a U.S. District Court judge in Utah to dismiss breach-of-contract charges that The SCO Group Inc. made in the Linux-related lawsuit it filed against IBM last year. Lindon, Utah-based SCO, which claims that IBM breached a Unix System V licensing deal, didn't return calls seeking comment. In May, IBM asked the judge to dismiss a claim that it had violated Unix copyrights held by SCO; a decision on that request is still pending.

Gartner Lowers PC Sales Forecast

Gartner Inc. reduced its worldwide PC shipment forecast for this year, saying that the market won't grow as much as it had predicted because of continuing economic concerns in the U.S. and other regions. Gartner now expects shipments to increase 12.6% year over year, down from its previous projection of 13.4% growth. Rival market research firm IDC said it's still forecasting 13.5% growth in PC shipments.

Short Takes

IBM said it has agreed to buy two Danish IT services firms as part of a series of deals that includes a 10-year IT outsourcing contract with Danske Bank AS in Copenhagen. . . . NETSCAPE COMMUNICATIONS CORP. released Version 7.2 of its Web browser.

Attorney Says Sloppy IT Deals All Too Common

Final contracts often don't include 'guarantees' made during sales pitches

BY THOMAS HOFFMAN
NEW YORK

MOST IT contracts "are atrocious, poorly written and short on details," according to attorney Mark Grossman. In short, he said at a conference here last week, "they're a breeding ground for litigation."

The breakdown in writing effective contracts is largely the fault of technology buyers, said Grossman, chairman of the technology law group at Becker & Poliakoff PA in Coral Gables, Fla. He added that IT and contract managers often fail to apply critical negotiation techniques, such as ensuring that system performance promises made by vendors in response to requests for proposals (RFP) are included in final agreements.

Grossman led several sessions on the legal aspects of IT contracts at the conference, which was held by Share Inc., a Chicago-based user group

whose membership is primarily drawn from IBM's mainframe customer base.

Part of the problem is that vendors' responses to RFPs are usually drafted by their sales forces to help clinch deals with users, Grossman said. Performance and support guarantees offered during the RFP process are often omitted from contracts written by the legal staffers of vendors, he noted.

Vendor Advantage

It's a common occurrence, agreed several IT managers.

"We do it all the time," said Earl Johnson, an application programming manager for the city of Dallas, referring to the failure to fully incorporate RFP terms into contracts. The main reason that happens, he said, "is the need for expediency and to maintain good relations with the vendor."

Software licensing managers and other technology buyers usually are less pre-

pared for negotiations than vendors are, said William Snyder, an analyst at Meta Group Inc. "If you're in negotiations with a software vendor, in 75% of the cases, they know more about your company than you do," Snyder said.

Grossman said it doesn't

What You Should Do

Conference speakers and attendees offered the following negotiating tips:

- **Align the finalization of contracts** with the end of vendors' fiscal quarters to get the best deals possible.
- **Include provisions for acceptance testing** to ensure that products meet performance and functionality expectations.
- **Make sure that software doesn't contain intellectual property** that's owned by another vendor and isn't licensed.
- **Put in writing that source code must be accessible** to your company through a source-code escrow firm.

help that most companies begin negotiations at an immediate disadvantage because contract drafts are typically crafted by vendors, unless the customer is a Fortune 100 company with considerable purchasing clout.

"We've taken a different approach," said an IT manager at a major auto manufacturer who requested anonymity. Last year, his company hired Gartner Inc. to create a master service-agreement template that it has begun using in negotiations with a group of four offshore application development vendors.

"Historically, our 15 application development managers each had the authority to negotiate such deals on their own," the IT manager said. The master service agreement "should give us more unanimity on contracts," he added.

But the new approach hasn't been a silver bullet, the IT manager cautioned. Since the offshore vendors returned the contract proposals with suggested changes five months ago, little progress has been made toward finalizing the agreements.

"The IT department is ready to go," he said, but he added that a busy workload for the company's contracts and legal team is "holding up the whole process." **C 48923**

Microsoft Tries to Cozy Up to Mainframe, iSeries Users

At the Share conference last week, Microsoft Corp. announced an upgrade of its Host Integration Server software that's designed to make it easier for users to link Windows systems with IBM's mainframes and iSeries midrange servers.

Host Integration Server 2004 includes new Transaction Integrator development tools that are integrated with Microsoft's .Net Framework and Visual Studio .Net technologies. The tools can be used to turn mainframe and iSeries applications into XML-based Web services, said lead product manager Steven Martin.

The upgrade, Microsoft's first

in four years, is due Sept. 1 and will be available in both standard and enterprise editions. Pricing is \$2,499 per processor for the standard edition and \$9,999 per CPU for the enterprise package, which includes full support for Transaction Integrator plus a bridge between Microsoft's message-queuing software and IBM's WebSphere MQ product. Martin said about 30 users took part in a "high-touch" testing program while others tested beta versions of the upgrade.

One of the high-touch users was Tom Taglianetti, a platform architect at Fiserv LeMans, a King of Prussia, Pa.-based unit of

Fiserv Inc. that sells software for the automobile financing industry. "Our interest in the product is primarily for its application integration capabilities with CICS technology," he said, referring to one of IBM's transaction management systems.

Mainframe Data on PCs

Total System Services Inc. (TSYS), which provides electronic payment processing services, uses Host Integration Server to provide up to 4,000 employees with access to mainframe data on their Windows PCs. Tim Kelly, director of distributed technologies at TSYS, said the .Net inte-

gration capabilities built into the new release let the Columbus, Ga.-based company "spool our apps into thinking mainframe-based data is native."

Host Integration Server has been a sleeper in Microsoft's product line but is becoming more interesting with the upgrade, said Peter O'Kelly, an analyst at Burton Group in Midvale, Utah. "The additional features may not be glamorous, but they're important," he said. O'Kelly added that he expects "very healthy competition" between Microsoft and IBM, which offers similar functionality in its WebSphere product line.

—Laura Rohde,
IDG News Service

Continued from page 1

PeopleSoft

dor, and our business depends on them, but there is still a lot of evolution for the merged organization that has to go on."

Pond is director of information services at Schnitzer Steel Industries Inc. in Portland, Ore., and the new president of Quest International Users Group, an independent organization for J.D. Edwards customers. He said the customer support and software development operations for the applications he uses are running at about the same levels as they did under J.D. Edwards.

However, like some other users, Pond had to change sales representatives and has raised concerns about PeopleSoft's software licensing policies [QuickLink 47778].

Differences in corporate culture have also affected user perceptions about PeopleSoft, according to Pond. "J.D. Edwards was very relationship-oriented — almost to a fault," Pond said, adding that he thinks PeopleSoft is more sales-oriented.

"The warm, fuzzy feeling is gone," said Mari Jo Moody, manager of customer support at Batesville Casket Co. in Batesville, Ind. She added that her company has lost some of the prominence it had with J.D. Edwards, which catered to midsize users such as Batesville Casket. "We used to have a close connection with J.D. Edwards, but now we're no longer the big fish in the pond," Moody said.

Despite such comments, PeopleSoft sees the acquisition as a big success, said Ram Gupta, the vendor's vice president of products and technology and its point man on the integration of the two companies.

"My experience in 16 acquisitions tells me that in 12 months, this acquisition has gone absolutely pretty much as planned or better," Gupta said. "We've added more products, increased the research and development, and are getting cultural benefits from the companies' similarity, and

Users Have More Choices, Better Support, PeopleSoft Exec Says

As vice president of products and technology at PeopleSoft, **Ram Gupta** has worked very closely on the integration of its applications and the software developed by J.D. Edwards. He spoke with *Computerworld* this month about the merger of J.D. Edwards into PeopleSoft.



Do you view the merger as a success? The customer has more choice [now]. On the product side, we increased research and development in the World line by 10%. In the second quarter, we got done shipping the latest release of the EnterpriseOne family with 16 new products and 250 enhancements. In the last 12

months, we added more products to EnterpriseOne than was done in the two years before the merger. We took the Total Own-

ership Experience initiative going on in the PeopleSoft side of the house, and that's available to J.D. Edwards customers in terms of better supportability and a higher quality of code.

On the support side before, a large number of J.D. Edwards customers

were on a five-day-by-eight-hours support model for their maintenance. The J.D. Edwards users got migrated upward to a seven-day-by-24-hour model.

For the financial dimension, we paid \$1.8 billion and still put \$89 million in the bank [in the

second quarter], and we're clearly the No. 2 applications provider after SAP.

Some J.D. Edwards customers complain that they're being forced to migrate to PeopleSoft's licensing scheme or face pricing penalties. Is that true? You can have a value-based or user-based license. We didn't force customers to choose any model. That's not the objective, and that's an absolutely documented policy.

Another user complaint is that PeopleSoft is a more aggressive company than J.D. Edwards was. I think that's an interesting observation, unfortunately, that leads some to decide that PeopleSoft is a sales and

marketing machine, when we spend a higher amount of research and development dollars as a percentage of total revenue than Oracle or SAP, or J.D. Edwards did for that matter.

PeopleSoft is a more businesslike and professionally run company. Our customer profile was kind of bigger, and they needed a different kind of attention when we visited them: Wall Street or banking CIOs wanted people in suits and ties. J.D. Edwards had smaller customers — a \$200 million manufacturing plant in Idaho, for example.

PeopleSoft had a bad quarter. Is Oracle's takeover bid delaying purchases? Yes, it does make selling a little more challenging, as in the last quarter, but look at the numbers: We signed 160 new customers in the last quarter. I find that outstanding for a sales organization in such a tough environment.

— Marc L. Songini

we're adding better support."

Gupta acknowledged that PeopleSoft is "a more businesslike company" than J.D. Edwards was. But he said that approach is necessary because PeopleSoft has many banks and other large companies in its user base (see interview above).

Users said one plus is that PeopleSoft has upheld its commitment to continue enhancing the product lines developed by J.D. Edwards, including its World green-screen applications. PeopleSoft has released new versions of both the World software and the more modern J.D. Edwards 5 applications, which are now called EnterpriseOne.

"As a World user, life is infinitely better under PeopleSoft than it was during the last days of J.D. Edwards," said Dave Hyzy, director of IT at Benderson Development Co., a real estate developer in Buffalo, N.Y. "World is now a viable software product again."

But a huge rift has developed between Quest and Peo-

pleSoft, which decided not to take part in the Lexington, Ky.-based user group's conferences after talks between the two broke down late last year.

There also is the looming issue of Oracle Corp.'s hostile takeover bid for PeopleSoft, which was launched in apparent response to the deal with J.D. Edwards. PeopleSoft fell short of both its initial revenue forecast and a subsequent reduced target in this year's second quarter, a showing it blamed primarily on publicity

about the U.S. Department of Justice's attempt to block Oracle's bid.

"Without a doubt, the world would have been vastly different for PeopleSoft without the Oracle [offer]," said Josh Greenbaum, an analyst at Enterprise Applications Consulting in Berkeley, Calif. "Had they been more free to operate, there would have been much more hand-holding and more careful attention to the details that would have made the J.D. Edwards customers happy."

PeopleSoft has shown promise but remains on "probation," said David Hilmer, director of IT at GrafTech International Ltd. in Wilmington, Del. Hilmer will be paying close attention to PeopleSoft at its Connect 2004 user conference next month in San Francisco. "I'm still watching to be sure I'm serviced and supported as a customer and have the commitment from this company like I had from J.D. Edwards," he said.

☎ 48945

September: PeopleSoft upgrades J.D. Edwards' flagship applications, now called EnterpriseOne.

Postdeal Developments

April: Two of Quest's special interest groups defect to PeopleSoft's user organizations.

December:
■ PeopleSoft says it's developing unified software licensing and combining its sales forces.
■ The company releases links between its own applications and the EnterpriseOne line.

January: The Quest user group says PeopleSoft has decided not to support its events.

March: PeopleSoft announces an upgrade of J.D. Edwards' green-screen software.

July: PeopleSoft reports Q2 revenue shortfall, blames fallout from Oracle's takeover bid.

MARYFRAN JOHNSON

Checklist for Success

A CIO FRIEND OF MINE once confessed, somewhat sheepishly, that he simply can't resist a good checklist. Whenever and wherever he comes across a numbered list of any kind (a lineup of checkboxes is a particular thrill), he has to stop and read it. Tips, tactics, random advice — almost any top 10 list is grist for his mental mill. "Most of the time I know all the stuff on the list; often it's just common sense," he admits. "But every now and then I find a really great idea."

I was thinking of that list-hungry CIO as I looked over our "IT Survival Guide" (page 30, and online at QuickLink 48479). It's not a complicated or daunting list by any means, coming as it does from that cheerful guy holding the shovel, Ace Hardware CIO Paul Ingevaldson. What's his claim to fame? He not only lasted at Ace for 25 years ("a long time in this day and age of the portable CIO," he notes); he also logged four decades in IT. Imagine being able to boil down 40 years of IT experience to 10 core pieces of advice.

But no matter how fine a list it is, you won't remember 10 things. So I've boiled them down further into three enduring truths about IT and business. Almost any list you'll ever encounter about IT management could be parsed into the following mantras:

1. Whatever connects IT more closely to the business is worth doing. The first piece of advice Ingevaldson offers is to get out of the IT department and work in a business unit, a recommendation I've heard echoed by so many management consultants that I've lost count. But coming from a CIO (and one who's rooting for you to return to IT), it carries substantially more weight.



MARYFRAN JOHNSON is editor in chief of *Computerworld*. You can contact her at maryfran.johnson@computerworld.com.

He also stresses the importance of grasping the corporate business strategy and then mobilizing IT to support it. Not just implementing a strategy, he warns, but getting IT involved as part of the process. And to all those companies trying to charge out IT as a business-unit expense, this veteran CIO says to cut it out. "Operate it as an expense center," he recommends, explaining that if top business execs are part of the prioritizing process, they'll know that IT is "working on the important

applications." Operating IT as a utility means it will never be strategic.

2. Whatever improves communication about IT is worth repeating. (Read that again.) This is one of the toughest sells to introverted IT folks because it entails talking up (a.k.a., marketing) the value of IT to end users. And that means actually speaking to those people. "Don't keep IT in the closet," Ingevaldson says. "Spread the word, create excitement and convince people to get on the IT bandwagon." (There's got to be at least one extrovert in your IT department, right? Put her to work.)

3. Whatever encourages good IT management practices is worth trying. Using a hands-off management style with smart, motivated staffers ("Get out of their way") is another of Ingevaldson's tips, alongside classics like learning to delegate and setting high expectations for meeting project dates and budgets. "Missed deadlines and busted budgets are the things that give IT a bad name," he notes.

Of course, after 40 years of dealing with end users, this CIO knows there will be simply god-awful days when none of his management mantras will help. That's when he gets really sensible: "Tough days are why they invented single malts." **48927**



VIRGINIA ROBBINS

Not All Employers Play Fair

RECENTLY, my extended family joined me for an all-too-brief summer get-together in San Francisco. On one particularly foggy day, Samantha, my 12-year-old niece, turned to her 20-year-old cousin, Matthew, and announced that while they were waiting for lunch they would play keep-away. Speaking with a great deal of authority, Samantha announced the rules that would make the game fair. Six-foot-three Matthew would need to sit on the carpet in the middle of the room, while she would go to the other end of the room and kneel. Kathryn, age 6, would stand by the door with plenty of room to throw, and Ashley, 4, would sit in the big chair by the door and catch. Matthew, having met his equal in the world of keep-away, agreed. Samantha began by tossing the green Nerf ball over Matthew's head to her sisters, and the girls managed to keep the ball away from him until the PB&J and chocolate milk were ready.

As I prepared the sandwiches in the next room, I couldn't help but think about Samantha's view of fairness. The game was clearly equalized, with tall, skinny Matthew, seat plastered to the carpet, straining to reach the ball. I was impressed with Samantha's ability to command a room and keep the game fun for her little sisters. And I had to smile, since as an adult I know that life isn't fair, no matter how well we command the room.

When it comes to outsourcing, whether that involves shipping work elsewhere in the U.S. or overseas, the employers that we choose to work for don't always seem to play fair. Of course, what's fair to you may not be fair to me, so to illustrate what I think is fair, I will use words that rely on a time-based viewpoint. I will define fair



VIRGINIA ROBBINS is CIO and managing director at Chela Education Financing in San Francisco. Contact her at v_m_robbins@yahoo.com.

as a balanced, long-term perspective, and *unfair* as a short-term, less-balanced perspective.

Short-term companies are those that focus on how much money can be made as soon as possible. In the most extreme cases, short-term companies are only about today's cash position. For these companies, outsourcing, especially overseas outsourcing, isn't an investment — it's a way to cut costs today. For employees working in these companies, it's sometimes frighteningly obvious that domestic workers are an undesired expense.

Other companies have a long-term perspective and see costs, including employee costs, as an investment. These companies may still choose to outsource, but if they do, they'll structure the work and the agreements to reflect a long-term strategy, developing disciplined processes over time that change in response to their experiences. If you've worked only in short-term companies and are curious as to what attributes a long-term company displays, read Jim Collins' books *Good to Great* and *Built to Last*.

Some believe that short-term thinking is what capitalism is all about. As an economist, I don't agree. A free market allows companies to look to the short term and to profit or not accordingly. It also allows those that look to the long term to profit or not as well. It's fabulous that we live in a country that allows companies and employees to choose, and then to act accordingly. Life isn't fair, but that doesn't mean you need to work for someone focused only on the short term. **48832**

DAVID MOSCHELLA

Keeping Up With Your IT Consumers

DO THE EMPLOYEES in your organization ever complain that they have better technology at home than in the office? Do you require them to access corporate systems via a dedicated PC as opposed to any Internet-connected browser? Do they ever use their personal Internet e-mail accounts for business and laugh at the limitations of Microsoft Exchange or Lotus Notes? Do they sometimes shake their heads

wondering why, if they can set up a wireless LAN at home in a few hours, corporate IT says wireless systems in the office are too complex and risky?

While IT professionals can often give perfectly valid answers to these and similar questions, you know before you give them that they will mostly fall on deaf ears. The reality is that employee expectations of IT are now being shaped outside of the workplace. It's all part of the increasing consumerization of corporate IT.

Consumerization is happening in two main ways. First, many employees are now active consumers of IT. They're becoming increasingly familiar with broadband, multimedia applications, wireless systems, digital cameras, smart phones and browser-based computing. They're also becoming increasingly intolerant of workplaces that still treat them as passive users. Moreover, the laptops and mobile phones they carry are almost always dual-purpose devices used extensively for both business and personal applications.

The ramifications of this are now becoming clear. IT departments have



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become accustomed to treating employees like children who must be told what they can and cannot do. But many employees want to be treated like consumers, given choice and flexibility in their use of IT. If they are going to work at home and lug around dual-use work/personal devices, these devices will have to meet their personal standards, not just for functionality but increasingly for style and fashion as well. Requiring every em-

ployee to accept the same generic IT capabilities will become almost as absurd as requiring that every employee drive the same car.

The second aspect of consumerization will in the long run prove even more important and disruptive. Increasingly, the public infrastructures that are emerging to support consumers will be fundamentally better than the private infrastructures that companies have traditionally built for themselves.

Just look at the price/performance of today's consumer-oriented Wi-Fi, videoconferencing, storage, messaging, Internet telephony and broadband services. While Google's advertising-

based plan to give consumers a free gigabyte of e-mail storage won't be for everyone, it is certainly indicative of the enormous service improvements to come.

Similarly, while large enterprises have generally looked askance at the idea of utility computing, the reality is that this is the way most of the market already works. Consumers and many small businesses already buy their networking, storage, hosting and telephony capacity by the month, based on what sort of service requirements they expect to have. They don't build infrastructure; they simply use it.

Therefore, the big question is whether large organizations will continue to have their own unique style of computing, with a heavy emphasis on their own private infrastructures and the rules needed to support them, or whether at some point consumer and business computing will effectively merge, with everyone increasingly sharing a common public infrastructure. That's the long-term promise of consumerization, and although it's still a long way off, that's the direction the market is moving in. **48846**

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READERS' LETTERS

Doomed Projects Are Nothing New

YAWN! Another IT project delayed or doomed ["Australian Firm Wrestles With ERP Delays, \$11.5M Overrun," QuickLink 48068]. "Dog bites man" would be a more newsworthy story. If there were fraud or other malfeasance, there might be some reason to run a small piece on this. But if this is just another level-zero customer dealing with a level-zero contractor bumbling along and hoping to eventually hack-together some software system, why bother killing a tree for it? What the readers of *Computerworld* should be told is the root cause of this problem.

In the same issue, the story "IT Governance Is on the Hot Seat" [QuickLink 48025] echoes the same problem. Portfolio management is routine in well-run companies. It is just an extension of project/program management, and unless the company is exceptionally large, there should be no need for a

separate committee. In a truly large company, an integrated product team, or IPT, as these committees are commonly called, would be a routine part of normal decision processes. Such teams consider not only the cost and value added but also the impacts on other areas. They consider constraints such as budgets and delays to other projects if shared resources are diverted. In short, they make decisions that will optimize the enterprise within the real-world constraints of time and budget.

William Adams
Consultant, Springfield, Va.

Waiting for What's Next in E-mail

MARK HALL'S COLUMN "The End of E-mail" [QuickLink 47526] was intelligent, factual, readable and made complete sense. Hall will be attacked by the techies, but they're no different from the people who said that the Pony

Express was the greatest communication tool that would ever be developed.

Andrew H. Olson
Managing director,
TEAM International Group,
Gainesville, Fla.

I KEPT WAITING for the punch line in Mark Hall's column, but I was left high and dry. What is going to replace e-mail? Of course messaging will evolve, as it has from news-groups to e-mail. But I disagree that it will evolve because of spam and viruses. It will evolve because a new alternative will be easier, more reliable and more flexible.

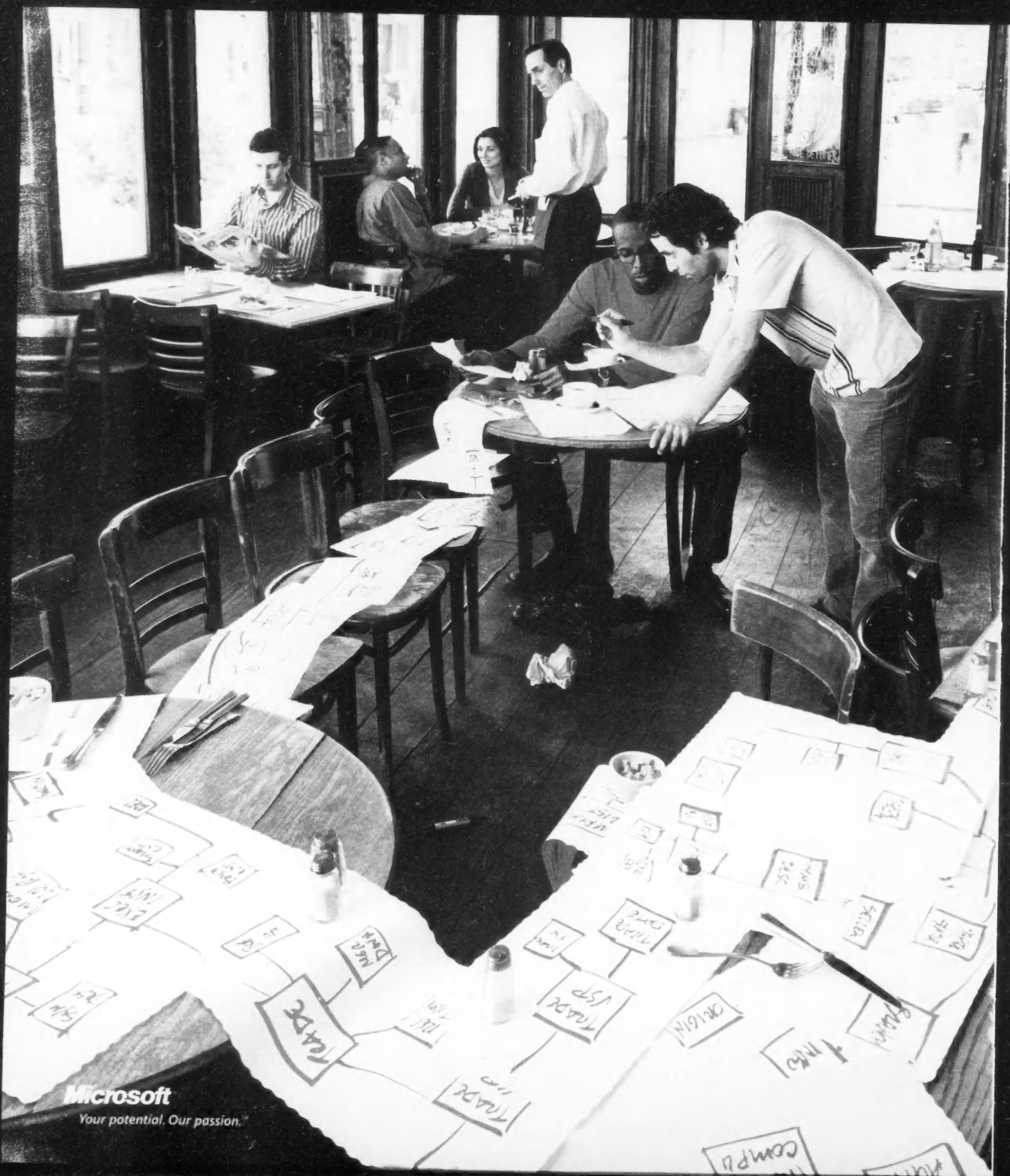
It's true that handhelds don't have the problems commonplace in e-mail, but those problems arose only when usage levels made it worthwhile for spammers. When handhelds catch up, you can be sure that the spam marketers and virus aficionados will reset their sights on that next-generation mass platform. That is also a natural evo-

lution. For handhelds (or whatever the next generation is) to catch up, their architectures will have to become more open to enable third-party development to provide applications, data/information and other integration, and those are the same tools that enable spammers and hackers to thrive. And then the cycle will begin again!

Dan Leichtenschlag
CTO, Diets.com,
Deerfield Beach, Fla.

COMPUTERWORLD welcomes comments from its readers. Letters will be edited for brevity and clarity. They should be addressed to Jamie Eckle, letters editor, Computerworld, PO Box 9171, 500 Old Connecticut Path, Framingham, Mass. 01701. Fax: (508) 879-4843. E-mail: letters@computerworld.com. Include an address and phone number for immediate verification.

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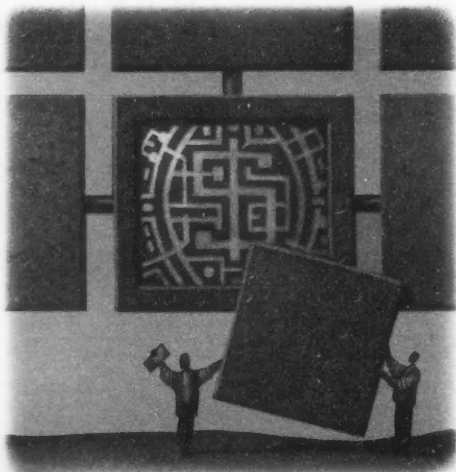
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From Cutting Edge to Corporate Stage: Grid Computing and the Enterprise

Maryfran Johnson, Editor in Chief, Computerworld

8:45am to 9:15am

Industry Analyst Perspective

9:15am to 9:45am

Virtualization at CIGNA Corp.: Balancing Tactical IT Goals with Business Strategy

Ben Flock, VP of Virtualization and Application Frameworks, CIGNA

9:45am to 10:15am

Refreshment and Networking Break

10:15am to 10:45am

Update from the Enterprise Grid Alliance

10:45am to 11:15am

The View of Grid Computing from Iron Mountain

Bill Olsen, VP of Engineering, Iron Mountain

11:15am to noon

Key Considerations in Grid Computing Projects: An IT Executive Roundtable

Panel Moderator: Patrick Thibodeau, Senior Editor, Computerworld

Noon

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FUTURE WATCH

Software Flight Plan

Paul D. Nielsen, the new CEO of Carnegie Mellon's Software Engineering Institute, explains how his experience running a \$3 billion military research lab will help the university develop commercial applications. **Page 24**



OPINION

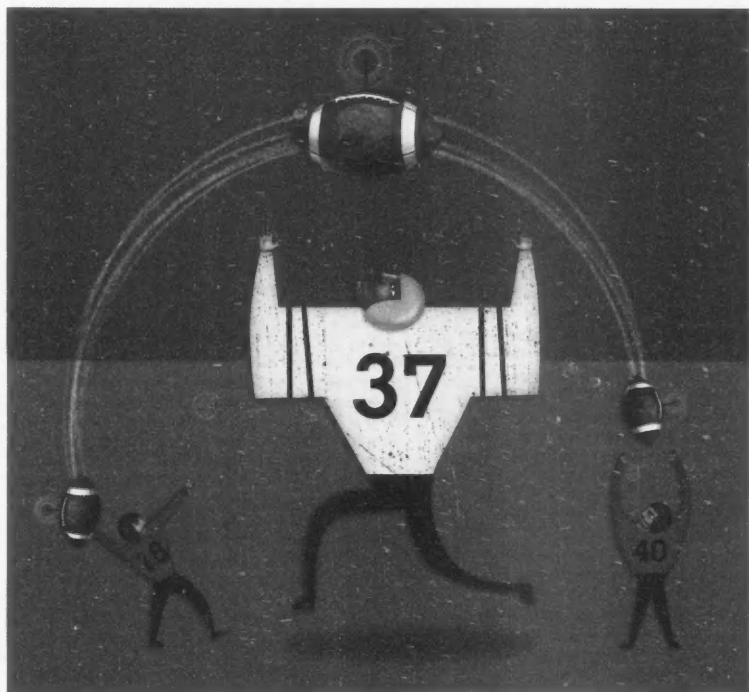
Here's to Your (Electronic) Health

The U.S. Health and Human Services department's initiative to consolidate Americans' electronic health records is a worthy cause — and a daunting project, says Tommy Peterson. **Page 26**

SECURITY MANAGER'S JOURNAL

Antivirus Service Troubled by TLS

A new antivirus service runs afoul of Roger Foix's all-too-complicated Transport Layer Security e-mail encryption configuration. **Page 25**



WI-FI PLAYS DEFENSE

The new 802.11i wireless LAN security standard is a step forward, but Wi-Fi LANs still aren't impervious to attacks. **BY JOANIE WEXLER**

Unbound by the physical constraints of cabling and walls, wireless LANs have proved tricky to secure. Now that the long-awaited 802.11i standard for enhanced WLAN security has been ratified, can IT assume that WLANs have grown as secure as their cabled counterparts?

Hardly.

It will take time for vendors to migrate their products to 802.11i, approved in June, and for IT organizations to adopt them. And the Wi-Fi Alliance won't even start interoperability testing of 802.11i products until next month.

More important, 802.11i represents just the finishing touch to a series of steps in wireless security standards development. Much of it has already been available for about 18 months in an 802.11i subset called Wi-Fi Protected Access (WPA). And while standards-based security technology plays a big part in protecting enterprises, the issues reach beyond a signed set of technical specs.

For example, there's a broad installed base of specialized client devices, such as bar code scanners, that run the MS-DOS operating system. They are not upgradable, even to earlier versions of authentication and encryption, let alone to 802.11i, which requires Advanced Encryption Standard protection. AES will require hardware upgrades — even for far newer products. As enterprises expand their WLANs, these legacy devices might well become the weakest link in the wireless security chain.

And some administrators lack confidence in their ability to properly implement the various pieces of WLAN security, particularly since new attacks regularly make headlines.

Asserts Pete Davis, assistant network engineer for the Spring Independent School District in Spring, Texas, "It requires much time and effort to determine what's real and what's market-speak. There's a lot of FUD [fear, uncertainty and doubt] being spread about wireless security."

Technology Headway

The formal 802.11i standard, which includes WPA, does bolster the confidentiality and integrity of WLANs. Tom Hagin, vice president of the wireless business practice at integrator NetXperts Inc. in San Ramon, Calif., says the standard has taken Wi-Fi security "from prepuberty to just past puberty."

"In the past six months, we haven't had anyone say they weren't going to install wireless because it isn't secure. Prior to that, we did," he says.

WPA, available in many WLAN network interface cards (NIC) and access points (AP), was developed

after university researchers demonstrated the ease with which hackers could break static encryption keys in the 802.11's Wired Equivalent Privacy (WEP) mechanism in 2001. WPA requires products to rotate encryption keys on a per-packet basis so they are much harder to crack. WPA also uses the industry-standard 802.1x framework for strong user authentication.

And AES, the U.S. government block-cipher standard for 128-bit data encryption, replaces the RC4 stream-cipher encryption that WEP and WPA use.

Still, "WPA will be good for three to five years before those smart kids who broke WEP break RC4. Then everyone will need AES," says Michael Disabato, an analyst at Burton Group in Midvale, Utah. 802.11i also specifies a way to achieve fast secure handoffs among APs (in the 25-msec range) and a simpler authentication scheme for small WLANs.

Practical Limits

But technology can solve only so much. Through 2006, 70% of successful Wi-Fi attacks will occur as a result of the misconfiguration of APs and client software, according to Gartner Inc.

This is why the Bethesda, Md.-based SANS Institute, which offers information security training and certification, recommends regular wireless audits. "AES is great," says Joshua Wright, deputy director of training. "But if people don't audit their networks, they might not know that a misconfigured AP isn't using it. This is low-hanging fruit for attackers."

Conducting audits requires tasks both on the wired and wireless sides of the network. First, says Wright, administrators should regularly download each AP's configuration and make sure it accurately reflects the organization's internal security policies.

For example, if an enterprise has adopted 802.1x and has selected Protected Extensible Authentication Protocol, one of several available authentication methods, network administrators should regularly check that all APs are indeed configured for PEAP.

In addition, airborne packets should be regularly examined using a wireless protocol analyzer to verify that they are actually using the EAP method selected. "Sometimes settings on APs have not been applied and do not kick in," Wright says.

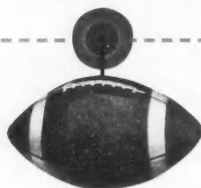
Another recommended practice is treating the WLAN as an untrusted network, like the Internet, and putting a firewall or gateway where wireless and wired networks meet. Though this is a well-established guideline, "a lot of companies don't do it," observes Davis.

The Spring school district, however, has deployed the internal firewalling capabilities in Aruba Wireless Networks Inc.'s WLAN switches.

"We have an apartment complex behind us, and outsiders could poach on our Internet connection [without the firewall]," Davis notes. "Our district could be held accountable if they did nefarious things using our source network address."

Davis says the setup also lets him use an access control list to determine which network resources are available to each user in the 26,700-student, 25-school district. Wireless gateways from companies such as Bluesocket Inc. and Vernier Networks Inc. provide similar access control list functions.

It is not obvious to all network implementers how to glue the many available security mechanisms to-



THREATS TO WATCH

Even with the range of WLAN security technologies available today, risks remain. Beware of these three threats:

IDENTIFY THEFT

■ Merwyn Andrade, a contributor to the 802.11i security specification and chief technical officer at Aruba Wireless Networks, warns that identity theft could become a problem for enterprises using WLANs. For example, users with 802.11i wireless phones might save their passwords and PINs on the phone for convenience. "This would be like keeping your keys to your house in your wallet and then losing the wallet," he says. "Once 802.11i is pervasive, people might miss that they have to worry about authentication."

DEAUTHENTICATE DENIAL-OF-SERVICE (DoS) ATTACKS

■ Tools like Void11 software can flood a client with deauthentication packets, in effect telling clients that there are too many users associating with an AP and to seek another one. Repeated flooding of such legitimate 802.11 messages could sustain a DoS attack on clients indefinitely.

MESSAGE INTEGRITY CHECK (MIC) DoS ATTACKS

■ In the 802.11i specification, the MIC protocol compares MAC headers when transmitted and when received. If they differ, they are deemed spoofed, so the packet is dropped. However, if this happens twice within a minute, the WLAN AP tells the entire network to log off and stop accepting traffic for a minute. Repeated double MIC changes could result in prolonged DoS attacks.

gether. "Wi-Fi security is not something that you can set and forget," says Boris Shubin, director of IT at Dunkin' Donuts Inc., which recently deployed a wireless speech-recognition-based picking system in its Swedesboro, N.J., warehouse using centralized WLAN switches from Airespace Inc. "APs ship wide open. WLAN security is iffy; it's a very high-touch standard."

Dunkin' Donuts uses media access control address filtering to keep suspicious packets off its network. If a MAC client source address isn't on an approved

list in the switch, it isn't allowed access.

Disabato says MAC filtering works but isn't scalable. "You have to change your system if a card breaks. If a guest leaves, you have to remember to remove their MAC address," he says. Such labor-intensive approaches tend to be less secure simply because they are error-prone.

Even the world's largest WLAN operator — Microsoft Corp. — isn't using WPA yet on its 4,500-AP WLAN, built on APs from Cisco Systems Inc. Many of Microsoft's older APs are first-generation technology and are not WPA-capable.

Microsoft is poised to make a wholesale change to its global WLAN infrastructure, which supports about 100,000 unique mobile devices. "11i is our main goal, but we can't move to it yet because no NICs support it," says Don Berry, the wireless network engineer who has overseen Microsoft's global WLAN implementation since 1999.

"We're assessing what the various EAP security strengths are," he says. "What will it take to live day to day using a particular method? How many servers would each type require? What's the security strength of each?"

Which EAP?

Most enterprises will select an EAP authentication method based on the type of database they have, says Dave Halasz, who chaired the 802.11i Task Group and is manager of software systems in Cisco's wireless networking business unit. "If you don't already have a certificate database for authenticating users, you might not put one in just for wireless," he says.

In fact, notes Kevin Tseng, senior wireless engineer at NetVersant Solutions, a systems integrator in Seattle, "most companies do not run a public-key infrastructure," which is required for using EAP methods that use client- and server-side certificates, such as EAP-Transport Layer Security.

Cisco's broadly deployed Lightweight EAP supports easier-to-manage username/password schemes but is prone to off-line dictionary attacks in shops that can't enforce strong password policies. LEAP also supports mutual authentication, an 802.11i recommendation, as do PEAP and another common method, EAP-Tunneled Transport Layer Security.

"But these are mostly supported in smart clients such as laptops," says Tseng. "Scanners for tracking inventory don't support them." He estimates that less than 30% of devices in the field are outfitted with mutual authentication today, leaving many deployments exposed.

Still, WLAN security has come a long way, says Disabato. "Two years ago, people who hadn't been antenna-heads for very long didn't even understand that walls don't stop signals. Now that people are thinking of networks radiating in a 360-degree sphere, they're doing much better." **48342**

Wexler is a freelance writer in Silicon Valley. Contact her at joanie@jwexler.com.

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Maryfran Johnson, Editor in Chief, Computerworld

8:15am to 8:45am **Consolidation and the Data Center:
Boosting Business Performance
and Application Availability**
Richard Villars, Vice President, Storage Systems Research, IDC

8:45am to 9:15am **User Case Study –
Hilton Hotels: Considering the Next
Generation Network**
Damien Bean, Vice President, Corporate Systems, Hilton Hotels

9:15am to 9:45am **User Case Study – MasterCard International**
Jerry McElhatton, Senior Executive Vice President, Global Technology and Operations, MasterCard International

9:45am to 10:15am Refreshment and Networking Break

10:15am to 10:45am **End-User Case Study**

10:45am to 11:15am **Customer Challenges and Solutions:
Real-Life Scenarios Connecting Data
Centers Over Distance**
Steve Adolph, CTO, Enterprise Solutions Group, CIENA

11:15am to noon **Panel: Overcoming Management Barriers –
Making the Case for Consolidation**
Panel Moderator: Don Tennant, News Editor, Computerworld

Panelists: Damien Bean, Vice President, Corporate Systems, Hilton Hotels; Frank Enfanto, Vice President, Operations Delivery & Information Security, Blue Cross Blue Shield of Massachusetts; Steve Goldman, Director, Network Architecture, Chicago Mercantile Exchange; Ron Kifer, Vice President, Program Management, DHL Express; Jerry McElhatton, Senior Executive Vice President, Global Technology and Operations, MasterCard International

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MIKE LUCAS, IT director at Hogan & Hartson LLP, had had enough. The Washington-based law firm was paying \$30,000 a month to back up data on more than 400 servers located in 27 offices worldwide and store the tapes off-site. Lucas says he couldn't stomach the cost of buying more tape drives to back up every new print, file or application server.

Along with the increasing costs, the tape-based infrastructure created administration issues, including the need to sometimes rely on nontechnical staffers to swap out tape cartridges in each remote office every night and take them off-site.

Then there were the software glitches. "We'd have trouble from time to time with a tape getting hung, having to do a reboot of a server during off hours. We were at risk of not having a backup," Lucas says, adding that retrieving tapes for restoring data in an emergency could take more than a day.

Data protection executed at remote sites is often a hit-or-miss scenario because "no one knows if the backup actually happened or if a restore can occur," says Arun Taneja, an analyst at Taneja Group Inc. in Hopkinton, Mass.

Those frustrations led Lucas to use a remote backup strategy that brings backup data into the data center, where it can be centrally managed. Vendors offer a variety of network-based schemes that pull data across a WAN to a central repository. These systems are simpler to manage and more cost-effective than local tape backups, analysts say.

Most include software and appliances that replicate data from branch offices to the data center, where it is backed up to a disk device and/or tape library. This model eliminates the need for media handling or IT support at remote sites and offers greater security, since backup data is centralized.

The increasing popularity of these systems is starting to affect sales of entry-level tape drives commonly used to back up direct-attached storage. IDC in Framingham, Mass., is forecasting a 20% decline this year as administrators increasingly decide not to back up branch servers locally.

The Options

Vendors offer several approaches to remote backup. Software such as Veritas Software Corp.'s Storage Replicator and CYA Technologies Inc.'s

HotBackup first execute a complete backup of direct-attached storage on each remote server or network-attached storage appliance and then move incremental or "delta" changes over the WAN to the data center.

Some organizations with branch offices that host multiple servers are choosing to first consolidate backups to a local disk-backup appliance before replicating data across the WAN. The appliance can complete server backups quickly across a LAN and then stream updates over the slower WAN connection to the data center, where it can be archived to tape.

For workstation backups, some storage administrators are creating virtual drives on remote end-user PCs and mapping those to a file server back in the data center. To avoid performance problems over the WAN, administrators install a local data-caching appliance that gives users access to their files at LAN speeds while updates stream in the background to the back-end appliance in the data center.

Lucas contracted with DS3 Data Vaulting LLC, a service provider in Fairfax, Va., for his network backup system, which includes disk-based ap-

REMOTE BACKUP SYSTEMS

- Ease backup management headaches by removing tape drives from branch offices and consolidating them in the data center.
- Afford greater security by centralizing backup data.
- Eliminate need for branch office staff involvement in backup processes such as tape rotations.
- Experience problems with replication throughput if WAN bandwidth is insufficient.
- Require additional software, adding complexity to the backup process.
- Require upfront investment in software and possibly hardware as well, depending on the system chosen.

pliances and software from Asigra Inc. in Toronto. Asigra's Televaulting DS-Client software runs on servers, desktops and laptops connected to each remote office LAN and automates the backup of about 3TB of com-

BACKING THE UP THE EDGE

Thanks to remote data replication and disk-based backup technologies, the data center is reasserting control over branch-office backups. **BY LUCAS MEARIAN**





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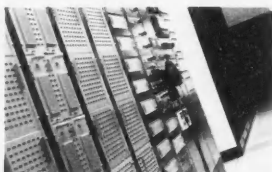


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MONDAY, OCTOBER 25

9:30am to 10:25am	INDUSTRY PRIMER TRACK	INDUSTRY PRIMER TRACK	CAREER DEVELOPMENT TRACK
	Addressing High Density Cooling of Storage Networking Equipment at the Facility Level Donald Beatty, Founder & President, DLB Associates	Storage Basics and Trends Dennis Martin, Senior Analyst, and Greg Schultz, Senior Analyst, Evaluator Group	Power Statements, Questions and Answers Techniques Howard Goldstein, Founder, Howard Goldstein Associates, Inc.
10:35am to 11:30am	Role of Server Blades and Virtualization in Next Generation Data Center Arun Taneja, Founder and Consulting Analyst, Taneja Group	Why Tape Continues to Make the Grade Richard Harada, President, Tape Technology Council	
11:30am to 1:00pm	Luncheon		
Afternoon	SNIA Tutorial Sessions 1:00pm to 5:40pm • Data Lifecycle • Virtualization & Securing Your Storage • Focus on Networking Your Storage • Focus on Storage • SAN Management • Voice of the User	IDC Briefing Session 1:00pm to 4:00pm  In this fast-paced session, IDC's top storage analysts will examine companies' growing interest in deploying tiered storage solutions and assess its impact on storage components, systems, networks, management and services.	IT End-User Golf Outing noon to approximately 6:00pm The pre-conference golf outing at the Ritz-Carlton Golf Club located adjacent to the JW Marriott Grande Lakes Resort is complimentary (a \$125 value) for registered IT end-users. (Other participants, including sponsors and vendor representatives, may play on an "as available" basis and are responsible for all applicable golf outing expenses.)  To secure your spot, contact Michael Meleedy at 1-508-820-8529.
7:00pm to 9:00pm	Welcome Reception		







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TUESDAY, OCTOBER 26 General Sessions Begin

- 8:30am to 9:15am  **Don Tapscott, Renowned Bestselling Author of *The Naked Corporation*, *Growing Up Digital* and *Paradigm Shift***
- 9:15am to 9:45am  **The Future of Knowledge Management**
John Halamka, MD, CIO, CareGroup Health System and Harvard Medical School
- 9:45am to 10:15am  **Kevin Rollins, President & COO, Dell**
- 10:30am to 11:00am  **Keith Glennan, VP & CIO, Northrop Grumman IT**
- 11:00am to 11:30am  **Elevating the Art of Storage**
Shinya Iwata, CEO, Hitachi Data Systems
- 11:30am to noon **Industry Presidents' Roundtable: A Market Outlook**
Moderator: Don Tapscott, Author of *The Naked Corporation*, *Growing Up Digital* and *Paradigm Shift*
- 12:15pm to 1:30pm **CONCURRENT LUNCHEON SESSIONS**

General Networking Luncheon
On the Valencia Lawn

Luncheon Session
 **Steve Duplessie, Founder & Senior Analyst, Enterprise Storage Group**

Luncheon Session: Measuring the Value of IT Investments
 **Richard Sneider, Managing Partner, InterUnity Group**

- 1:30pm to 2:00pm **End User Case Study: Best Practices: Data Center Consolidation**
David Cohen, VP, Technology Architecture Group, Merrill Lynch
- 2:00pm to 2:30pm  **Greg Reyes, Chairman & CEO, Brocade Communications Systems**
- 2:30pm to 3:00pm  **End User Case Study: Evaluating Options for Business Continuity/Disaster Recovery Plans**
Rüd Müller, Manager of Technology and Infrastructure, International Paper
- 3:00pm to 3:45pm  **CTO Insights Panel**
Moderator: Jon William Toigo, CEO & Founder, Toigo Partners International
- 4:00pm to 5:30pm **CONCURRENT SESSIONS**
- 5:30pm to 8:30pm Expo with Dinner / Interoperability & Solutions Demo Open  5:30pm to 8:30pm

WEDNESDAY, OCTOBER 27

- 8:30am to 9:15am  **Nick Carr, former Executive Editor of the Harvard Business Review and author of *Does IT Matter?***
- 9:15am to 9:45am **End User Case Study**
- 9:45am to 10:15am **Industry Leader Presentation**
- 10:30am to 11:00am  **End User Case Study: Realizing the Vision of Management Simplicity and Improved Business Processes in a Demanding, Distributed, High-Performance Environment**
Michael Prince, VP & CIO, Burlington Coat Factory
- 11:00am to 11:30am  **The Half-Life of Storage Trends**
Peter van Dijken, Chairman & CEO, ADIC
- 11:30am to 12:15pm  **Panel: End Users Speak Out**
Moderator: John Dix, Editor in Chief, Network World
- 12:15pm to 1:45pm Expo & Luncheon
- 1:45pm to 2:15pm **End User Case Study**
- 2:15pm to 2:45pm **Industry Leader Presentation**
- 2:45pm to 3:30pm **Analyst Roundtable Panel**
Moderator: Jon William Toigo, CEO & Founder, Toigo Partners International
- 3:45pm to 5:15pm **CONCURRENT SESSIONS**
- 5:15pm to 7:15pm Expo and Reception
- 7:30pm to 9:00pm Gala Evening, Dinner and Entertainment

INTEROPERABILITY & SOLUTIONS DEMO OPEN
1:15pm to 7:15pm

Interoperability & Solutions DEMO

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THURSDAY, OCTOBER 28

- 7:30am to 8:30am Breakfast
- 8:30am to Noon **CONCURRENT TECHNICAL & BUSINESS TUTORIALS**
- Noon Conference Concludes

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Chief Technology
Integration Officer
Public Broadcasting Service

"... SNW is a great venue for peer discussion ... an opportunity to provide feedback to vendors on what users need from them ... I sat down with my key vendors and shared information ..."



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Director, IT Infrastructure
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pressed data from local backup appliances in 10 offices over the WAN to an AT&T data center.

After completing an initial full backup, the remote appliance provides updates only for changed data blocks. It eliminates duplicate files, encrypts the data and compresses it at a 2-1 ratio before automatically sending it across the WAN on a scheduled basis.

Lucas expects a two-year payback on his investment. The initial system installation in Hogan & Hartson's central office cost about \$13,000. He has deployed 10 offices to date and is continuing to roll out the technology.

Caching Up

Companies such as Actona Technologies Inc. (recently acquired by Cisco Systems Inc.), Riverbed Technology Inc., Diksites Inc. and Tacit Networks Inc. use appliances at both the remote site and the central data center for global file sharing. The appliances speed up access to shared files in part by removing the overhead associated with file-serving protocols such as the Common Internet File System and Network File System.

Mukesh Shah, director of network services at The Associated Merchandising Corp. (AMC) in Plainfield, N.J., is in charge of file-sharing operations among 40 remote locations in a worldwide network that includes data center hubs in Hong Kong and New Jersey.

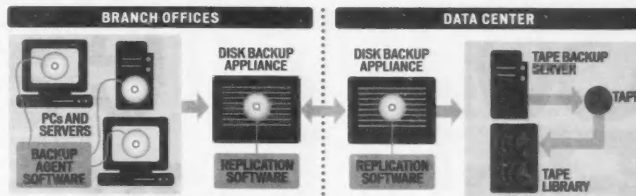
AMC uses MetaFrame serverware from Fort Lauderdale, Fla.-based Citrix Systems Inc., which gives Windows XP PCs and wireless devices virtual, thin-client access to applications running on back-end servers. It also uses the New Jersey data center for global file sharing of Excel spreadsheets, Microsoft Word documents and other files.

But users in Asia and Europe were waiting more than two minutes for remote files to open. The system also lacked adequate file-locking safeguards for some shared files. Users were "quite unhappy," Shah says.

Eight months ago, Shah began piloting a caching appliance from South Plainfield, N.J.-based Tacit Networks in his New Jersey data center. File-access times dropped from an average of 122 seconds to 11 seconds on first access and eliminated the end-user wait

BACKING UP THE BRANCH OFFICE

In a typical remote office scenario, PCs and application servers in branch offices running backup client programs are backed up throughout the day to a local disk appliance. From there, data is automatically replicated across a WAN link to another appliance in the data center. The data is then streamed to a tape library for archiving.



altogether on subsequent attempts after the file was loaded into the local appliance's cache.

"Tacit has a process where you can push files to a local cache on a scheduled basis," Shah says. "So when users go to access the file, it's already there."

When users change and save the file back to the cache, it's also saved on the main file-sharing server in New Jersey, where AMC staffers back it up. "All restores can be done centrally, whereas if we had to substitute the cache appliance with a file server, we'd have the complexity of backups and restores at the remote office level," Shah says.

Outsourcing It All

Overworked IT organizations that don't have the time or resources to set up a remote backup system can consider similar offerings from service providers.

Brian Asselin, IT director at Harborside Healthcare Corp., a Boston-based long-term care company, oversees operations for 55 locations and 8,500 employees, but he says he has only one IT person for each of the nine states in which facilities are located.

Harborside had been using direct-attached tape backup for its remote application servers, but Asselin says ensuring that backups occurred and performing restores was a nightmare.

"Our people working in the facilities are definitely technically challenged," he says. "Logistically, it would be impossible to restore with the people I have."

What's more, the Health Insurance Portability and Accountability Act requires greater security around patient information than Harborside's IT infrastructure can provide, Asselin says. "There's just a slew of security that needs to be in place by 2005 for HIPAA," he says.

Instead of building a central data

center where data could be replicated for disaster recovery purposes and further burdening his IT staff, Asselin chose service provider AmeriVault Corp. in Waltham, Mass., to host backup data storage and handle daily replication from the remote sites.

AmeriVault installed its Central-Control software on Harborside's desktops and an agent on each of its servers. After completing an initial full backup of all data, the vendor performs daily, incremental, encrypted backups over the Internet to its disaster recovery centers.

In an emergency, administrators at Harborside can perform data restores, even from home, using a point-and-click application on AmeriVault's Web portal. Alternatively, data can be shipped on tape for large restores.

Asselin says AmeriVault has "processes and procedures" that are HIPAA-compliant, which relieves his staff from having to set up its own compliance program. And Asselin says he also reduced labor costs by outsourcing his remote backup and recovery architecture because "we don't have to have people running around dedicated to the task of backup."

But while the remote backup technology made processes more efficient, the outsourcing approach wasn't necessarily cheaper.

"In terms of actual backup cost, it's pretty much a wash. When you consider bandwidth and license payments for software, it's pretty much even with other backup solutions," Asselin says.

Tony Asaro, an analyst at Enterprise Storage Group Inc. in Milford, Mass., says the costs of edge network backup technologies are continuing to drop, and as large companies investigate using these systems, big vendors are stepping in with new products.

Asaro points to EMC Corp.'s entry-level Clariion AX100 array, which can be directly attached to its NetWin I10 NAS Gateway or bought as a preconfigured storage-area network with backup and storage management software for remote office backup.

And EMC's Legato RepliStor replication software is bundled with switches from Brocade Communications Systems Inc.

"I don't think it's a fad," Asaro says. "I think more people are going to adopt this technology because it's cost-effective." **48547**



Software Flight Plan

A retired Air Force general aims to bring military discipline to software



On Aug. 1, Retired U.S. Air Force Maj. Gen. Paul D. Nielsen became CEO and director of Carnegie Mellon University's Software Engineering Institute in Pittsburgh. Before assuming his new job, Nielsen talked to Computerworld's Linda Rosencrance about what

his work in the military means for the future of IT and about his agenda for the SEI.

What are some leading-edge IT research areas in the military? How could they be applied to the commercial world in the future? The military leads in large-scale integration. In the past, we had communication networks that operated at different frequencies that made it hard for people to talk to someone who was on a different frequency or a different kind of receiver. So we're trying to integrate all those systems so people can do cross-banding — so a person who has a UHF radio ultimately can network into a trunk that's maybe at satellite frequency back to the States and then talk to someone and get information back.

I think that's an application the commercial world could benefit from. When you think that there is one satellite providing cable TV to the entire coast of the U.S., losing a satellite could be a terrible thing. But if you could do some of this cross-banding, cross-networking, you might have some ways to work around issues like

that and lease services on some other satellite to start to provide services to people that you've lost.

Another project in the military is speech enhancement . . . where we're doing some unique kind of work.

For example, when linguists listen in on people around the world, often the links that they listen to are rather noisy. So we've had to work over the years to take out the noise in the systems so the linguist has a better shot at understanding what's going on.

Because some noise gets conducted through your body — through your bones, not just your eardrums — we're starting to look at whether we can do active cancellation of noise that couples into your body through your bones. In the three-to-five year range, [reducing that noise] will help airline pilots, because it's really based on [current technology], and it's just extending it to different frequencies and power levels.

What are the top research projects on the SEI's agenda for the next three to five years?

The SEI is already involved in two of the most important pervasive areas in software engineering: process improvement for software and system development, and network security.

I'm convinced that increased efforts in software architectures could help in software quality, productivity and security. We need to boost our efforts in this area.

In Department of Defense systems and in commercial systems, we are increasingly seeing the challenges and difficulties associated with higher and higher levels of integration.

We also see the great benefits to horizontal integration across systems, across enterprises. In most cases, software is predominantly the glue that holds these systems together. So the line between good software engineering and good systems engineering is blurring. SEI has to work with the industrial base, the academic community and the government to improve the state of systems engineering in the United States.

There are other important areas: formal validation and verification, COTS [commercial off-the-shelf] reuse, software supportability, anti-tamper technologies for software, the growing issues of wireless [networks].

I'd also like to look at ultra-secure systems for certain applications and what are the software implications of nanosystems, advanced robotic systems and software in health-related systems, including prosthetics.

What would you hope those projects will lead to, and when? My hope is that we could make significant contributions in all of these areas over the next three to five years. SEI does not have to do this

Taming Unruly Systems

A sampler of SEI projects that are under way.

Flow-Service-Quality Engineering Project is defining ways to develop systems with shifting boundaries and users, uncertain COTS software, unpredictable failures and lack of control.

Function Extraction Project is exploring ways to predict the behavior of large, complex programs.

Intrusion-Aware Design Project is defining tools for identifying and implementing system-survivability strategies.

Vendor Risk Assessment and Threat Evaluation Project is developing methods for assessing vendor capabilities as indicators of product quality.

Financial Infrastructure Project is developing scenario-based methods to improve contingency planning and analysis to deal with physical attacks and cyberattacks.

COTS-based Systems Project is developing principles and practices for integrating and evolving systems from previously built and commercially available components.

work alone. We do it in conjunction with the broad scientific community in the U.S. and throughout the world.

How will the technology for these projects get transferred to the commercial sector? Since we work with the broad community, improvements and breakthroughs will transfer based on their merits.

We also work with the standards bodies to bring some consistency to the software "battlefield," and clearly major governmental sponsors like the DOD and the Department of Homeland Security help transition some efforts by bringing their substantial weight behind some efforts.

How will it help the corporate IT department? Corporate IT departments are an important market for software engineering technology, even though these same technologies are also very important to corporations for their external markets. Corporate IT departments need quality systems that are affordable, sustainable, reliable, evolvable and secure. Isn't this the heart of all the efforts on software engineering?

Improvements in the quality of the software, the supportability of the systems and especially the security of corporate systems are crucial for corporate IT departments. **48711**

FUTURE WATCH

PAUL D. NIELSEN

Title: CEO and director

Organization: Carnegie Mellon University's Software Engineering Institute

Background: Nielsen is a graduate of the U.S. Air Force Academy. He has earned three degrees, including a Ph.D. in plasma physics from the University of California, Davis. Until recently, he was commander of the Air Force Research Laboratory at Wright-Patterson Air Force Base in Ohio, where he managed an annual budget of more than \$3 billion.

Antivirus Service Troubled by TLS

Getting Transport Layer Security encryption up and running is difficult enough without having to migrate it to work with an antivirus service. By Roger Foix

IN MY LAST COLUMN, I explained my experiences setting up Transport Layer Security and how complicated it could get. Unfortunately, I've since discovered that it gets a lot worse.

TLS is a wonderful protocol that can be used to encrypt e-mail between two companies very easily. Most modern e-mail gateway software comes with TLS support built in, but there's a lot involved in setting it up, as I discussed last time [QuickLink 48237]. This week, we've been making things more complex by adding antivirus services to the mix.

A strategic decision was made that it would be better to make sure viruses never reach our infrastructure, and Gloucester, England-based MessageLabs Ltd. was chosen as the service provider. Normally, I'm cynical about the abilities of vendors' technical staffs. But after working with MessageLabs, for the first time in years I can say I'm impressed with a vendor.

Ten Minutes to Trouble

I was invited to the initial meeting with MessageLabs as an afterthought. My colleagues thought I didn't need to get involved, but they invited me to be polite. After all, I was dealing with secure e-mail, so they figured I might as well be along at the start to agree that I didn't need to be involved. The meeting would take only 10 minutes, I was told.

Unfortunately, I did need to

be involved. I was concerned about one throwaway comment at the end of the MessageLabs people's presentation. They were asked, "How do we ensure that all our e-mail goes through your service?" They answered, "We just change your MX record to point to our servers instead."

Mail exchange, or MX,

records are the routing part of the mail service: They tell the world which servers should handle e-mail for a particular domain. By changing our MX record to point to its servers, MessageLabs ensures that all of our mail goes through its servers, where it can be scanned for viruses.

That's a simple and quick solution. But by changing our MX records, MessageLabs is suddenly rerouting all our TLS connections as well, and we've got about 30 of them.

Technically, this shouldn't present a problem. Their servers can do TLS, ours can do TLS, all our clients' servers can do TLS, and so it should just be a matter of making

sure it's working on every server. But so far, about 95% of the project time is being spent dealing with the little TLS problems caused by the migration. The antivirus people aren't happy that their project seems to be getting derailed, and I'm not happy that I'm spending most of my time dealing with a project that was supposed to take 10 minutes of my time.

The Big Holdup

Truth be told, much of the delay is really my group's fault: We had a bizarrely nonstandard set of TLS connections. Some of our more important clients have decided to do things their own way, and we have to follow their lead. As a result, all of our TLS connections seem to have ended up being subtly different: One uses strong encryption, one uses weak; one uses MX routing, another uses static; one does one type of authentication, another uses none at all; and so on.

All that gives us quite a complicated TLS environment that must be extensively tested and migrated to MessageLabs. But there are two problems. First, much of the testing must be done on our production systems because our test environment isn't extensive.

Second, testing TLS connections on our clients requires the cooperation of our clients' IT staffs. We must deal with 30 IT staffs working for 30 clients on six continents in nine time zones, with 12 sets of holidays and eight native languages.

The tests themselves are easy — send an e-mail to our clients, get them to reply to it, and then quickly check the routing to make sure it was all encrypted. But when you're sending an e-mail from a mail server on the West Coast in

the U.S. to a server in France, you've got to send the mail before 9:30 a.m. if you want a reply. So every test tends to take at least a day because we have to wait for people in all the time zones to report back.

Then, just when we'd gotten it all working, we crashed the production mail servers. I won't go into exactly how we did it — it gets embarrassing — but I will say that it turned out to be an obvious error.

We also took a lot of flak from our sales staff about cutting off their e-mail links to clients. One sarcastic salesman's comments hit home. He said, "Remind me, isn't security all about making sure that e-mail keeps working? Doesn't that make it somewhat ironic that you're the ones who are crashing it?"

It's always hardest to deal with the truth.

While I'm on the subject of embarrassing moments, the worst bit about working with MessageLabs is that its people seem to know what they're doing. At our technical meetings, our experts spend 20 minutes discussing whether an idea will work, whether we'll be able to do it with our software, who's actually going to do it, and so on.

Then, when we ask MessageLabs, "Can you do this?" we get the immediate response, "Absolutely, no problems." Twenty minutes for us, three seconds for them.

So my advice for those of you looking to use TLS with a managed antivirus service is to make absolutely sure that your TLS environment is as simple as possible before you try to migrate it. Better still, get the managed antivirus service in place before you set up those TLS connections. Believe me, you'll save yourself a great deal of stress. ■

WHAT DO YOU THINK?

This week's journal is written by a real security manager, "Roger Foix," whose name and employer have been disguised for obvious reasons. Contact him at roger.foix@hushmail.com, or join the discussion in our forum: [QuickLink a1590](#)

To find a complete archive of our Security Manager's Journals, go online to [computerworld.com/secjournal](#)

SECURITY LOG

Firetrust Releases MailWasher Tool

MailWasher Server, an enterprise-wide system for e-mail security management, is now available from Firetrust Ltd. in Christchurch, New Zealand. The product is priced from \$7 to \$29 per seat and is available for Windows, Solaris and Linux operating systems. MailWasher Server's multilayered approach identifies spam or malicious e-mail before it enters a network. The product uses statistical content analysis filtering, connection filtering, policy enforcement, and blacklists and whitelists to help remove spam.

McAfee Revises Policy Orchestrator

Santa Clara, Calif.-based McAfee Inc. announced a new version of its ePolicy Orchestrator security event management software. EPO 3.5 is designed to work with Microsoft Corp.'s Active Directory, can alert staff to network threats and compliance-related issues, and integrates with McAfee's Intercept host intrusion-prevention software. The latest version also includes a virus-source reporting feature and an enhanced Microsoft security patch assessment capability.

Alcatel Improves Endpoint Protection

Calabasas, Calif.-based Alcatel Inc. has enhanced its OmniSwitch technology with a new capability designed to help companies prevent and contain threats to network endpoint devices. The new function combines OmniSwitch's virtual LAN capability with host-integrity, enforcement and remediation security technology from Sygate Technologies Inc. to allow administrators to ensure that all devices that connect remotely to a corporate network have up-to-date antivirus software and firewalls.

**SECURITY
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I'm not happy that I'm spending most of my time dealing with a project that was supposed to take 10 minutes of my time.

BRIEFS

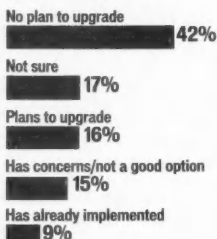
Sybase Rolls Out PowerBuilder 10

Sybase Inc. has announced the release of its Sybase PowerBuilder 10 application development software. New features include Unicode support, enhanced XML Web DataWindow and .Net support, and an Application Refactoring and Object Modeling function that lets programmers reverse-engineer applications. PowerBuilder 10 sells for \$2,995; upgrade pricing is \$645, according to the Dublin, Calif.-based company.

Certance Launches Ultrium Tape Drives

Certance LLC in Costa Mesa, Calif., announced its CL 800 LTO Ultrium 3 series and CL 400H LTO Ultrium 2 series tape drives. The CL 800 costs \$5,899, has a capacity of 800GB and a transfer rate of 490GB per hour and is aimed at large companies. The CL 400H, which costs \$1,999 and has a 400GB capacity, is targeted at small to midsize businesses. The unit boasts a 144GB-per-hour transfer rate and is targeted at small to midsize businesses.

How does your organization view Hewlett-Packard's Itanium server road map?



NOTE: Margin of error is plus or minus 4%.

SOURCE: Interex/HP user group poll of 350 members, July 2004

TOMMY PETERSON

Here's to Your (Electronic) Health

I HAD MY annual physical last week, and there were no surprises. The standard admonitions to watch my diet and get more exercise were accompanied by the usual depressing reassurances that all of those little aches, pains and minor bodily dysfunctions were merely normal signs of aging.

Also as usual, my primary care physician imparted this advice and information while shuffling through a bulging manila folder, looking in vain for notes from specialists and test results that either had never been sent or had been inadvertently tucked into an EKG printout from five years ago. That manila folder is as close to a comprehensive medical record as exists for me. And I'm much better off than most people, since I've been going to the same internist for 20 years.

This country's medical records system, or lack thereof, is just one of the things desperately wrong with the way we deliver health care in the U.S. The good news is that the federal government has a plan to use information technology to fix this aspect of the medical mess. The bad news is that the plan will take so long and cost so much to execute that it's hard to have confidence that it will ever come to fruition.

Last month, the U.S. Department of Health and Human Services (HHS) released its 10-year road map for the creation of a "health information infrastructure." The aim is to create a consolidated electronic health record (EHR) for every American and to build a nationwide network for securely transporting those records to health care providers.

The potential benefits of the system are enormous. Estimates of financial savings resulting from streamlined

health care administration and the elimination of redundant care range as high as nearly half a trillion dollars a year.

Beyond monetary considerations, a single EHR for every citizen would translate into improved care. Access to more information means that doctors and other providers will make fewer mistakes. Diagnoses and treatment plans would be more likely



TOMMY PETERSON is Computerworld's Technology Editor. Contact her at tommy.peterson@computerworld.com.

to be made in the context of the patient's overall health and medical history, rather than just in response to individual symptoms. In this case, technology would actually promote a more holistic practice of medicine.

So, if the potential benefits the health information infrastructure are so great, why isn't it on a faster track? A decade is a long time to wait.

Looking beyond the delays endemic to political maneuvering and entrenched bureaucracies, the sticking points are money and technology.

While the system will lead to enormous savings once it's implemented, upfront costs will be hefty, and the largest portion of them aren't covered in the federal budget. When the HHS plan was announced, Mike Kappel, vice president of strategic planning at health care IT vendor McKesson Corp., told *Computerworld* that its price tag could reach \$10 billion [QuickLink 48367]. With the feds allocating just \$50 million for health care IT this fiscal year and \$100 million for next year, there's a big funding gap

for hospitals and doctors to fill.

Administration will incur a big chunk of those costs, but the technology challenges in the project are complex and expensive. An EHR is a virtual entity, not a collection of information that will reside in a single repository. Pieces of the EHR will be scattered among a variety of systems, locations and media. Authorization to access the network infrastructure connecting them will be delegated by the patient, who will have been assigned a cradle-to-grave ID number and be required to use two forms of authentication, such as a security token and a thumbprint. Single sign-on capability will be crucial for providers, if the system is to succeed at its main mission: making it easier for them to get a patient's complete history.

The EHR system will have to maintain a complete audit trail, tracking who accessed a patient's record and when. Electronic document management and workflow tools must be integrated into the system, and providers will need to secure plenty of bandwidth to move images — digitized X-rays and CT and MRI scans and so on — around the network.

There are standards battles and certification skirmishes to be fought. Vendors have lots of work to do, most critically on their software interfaces. Interoperability is what the project is about. And nobody knows how long funding will last, or if the powers that be will, as they say in Washington, stay the course on the project.

But despite the complexity and uncertainty, few federal projects in recent memory have been as worthwhile as this one is. Who knows, if the U.S. can provide EHRs for each of its citizens, someday it might be able to give them all access to health care as well.

Q 48627

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IT MENTOR IT Survival Guide

Forty years in IT have taught Ace Hardware CIO Paul Ingevaldson a thing or two, and in this valedictory he shares some nuggets with his colleagues. **Page 30**

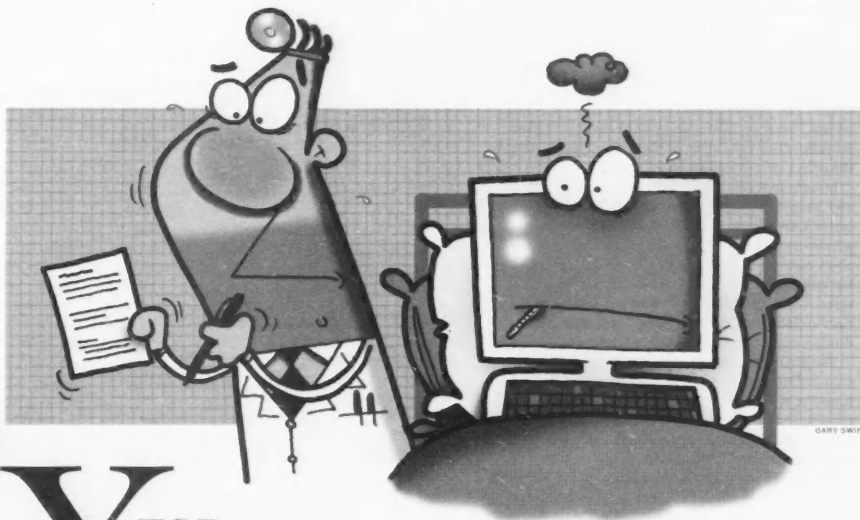
Q&A No Free Lunch

Open-source software is free — or is it? It comes with rights and obligations, and attorney and author Larry Rosen says it's important for IT managers to understand both. **Page 31**



Career Watch

Leveraging your skills; how project leaders really get picked; and IBM hits college campuses. **Page 32**



Rx FOR Success

Great hospital safety systems are all about getting the basics right — and knowing what motivates doctors. **BY CJ RHOADS**

WHEN CIO JOHN HUMMEL tried to computerize the way doctors write prescriptions for patients at Sutter Health, a network of 26 California hospitals, he came smack up against an immovable obstacle: physician resistance.

"We tried to implement computer physician order entry four or five different ways," says Hummel. "We tried four different vendors. We tried PCs, tablets and PDAs." In every case, technology slowed the process for the physicians. A prescription that took five seconds to order on paper took two to three minutes on the system. The doctors were frustrated over the crippling effect on their productivity, Hummel says.

The result: "Even with the [improved] system we finally implemented, it takes about a year for a physician to recover to 90% of their original productivity," he explains, and less than 20% of the doctors use it. "I would have to label the attempt a resounding failure."

User resistance is nothing new in IT projects, but in a hospital setting, the stakes are higher, and life-saving projects can be doomed by recalcitrant doctors. Still, user opposition is justified if new safety systems steal precious time and disrupt workflow.

The best way to win doctors over is to follow the same rules that guide any good IT system implementation: Start with strong executive support and realistic expectations; understand your processes and how the system will affect them; anchor the system with an efficient, bug-free back end; build a user-friendly front end; find committed users to lure in the rest; and provide good technical support. But most important, understand what really motivates your users.

Failed Front Ends

Hospital safety systems are doomed to fail if the physician-facing front end isn't tied to an efficient and responsive back end, and the back end needs to be built first, says Chris Giglio, director of the Accelerated Solutions Center at Cerner Corp., a Kansas City, Mo.-based vendor of hospital automation systems. "The physician changes should be implemented last," he says. The system must have a flawless workflow before it's put in physicians' hands so that the effect on them is minimized.

Jayashree Raman, CIO at The Reading Hospital and Medical Center in Pennsylvania, is following that order. Last year, she installed a back-end medication administration records (MAR) system, which enables clinicians to match a patient's bar code to the bar code on a prescription drug before it's administered. "The MAR is designed to ensure the five rights: right patient, right drug, right time, right dosage, right route," Raman explains.

She also plans to implement a computerized physician order entry (CPOE) system, but that will take time. "It is a complicated project affecting multiple departments," Raman says. "We are working through the process issues and anticipate having a working model in the next few months."

Tomorrow wouldn't be soon enough for Terrence Cescon, a doctor at Berks Hematology-Oncology Associates Ltd., who works with Reading. "Reading Hospital is in the Stone Age," says Cescon, who trained at Hahnemann University Hospital Inc. in Philadelphia, where a CPOE system had already been implemented. Because he's familiar with the technology, ordering a prescription online is quicker for him than writing it by hand, he says.

Back-End Basics

But Hummel maintains that the back-end MAR systems are even more important than the front-end physician systems.

"It's popular to point the finger at doctors' horrible handwriting," he says, referring to the 1999 Institute of Medicine report that estimated that as many as 98,000 patients die each year as a result of preventable medical errors in hospitals. But more recent studies have shown that only 13% of the errors are due to poor handwriting, he says. Eleven percent are introduced at the pharmacy, and a full 50% of the errors are made at the bedside.

"You can spend millions trying to avoid a physician's handwriting, but it won't make that much difference," he says. "Hospitals can make a much bigger impact with bar coding."

Even so, MAR systems alone aren't good enough, says Claire Turner, director of communications for The Leapfrog Group, a Washington-based consortium of companies that provide health care to

35 million Americans. "Implementing only the back-end process doesn't deal with the real issue," she says. "The earlier in the process you catch the errors, the better."

Turner compares a fully automated electronic health record system (which includes both CPOE and MAR) to safety systems in a car. "We need a seat belt, an airbag and antilock brakes," she says.

John Glaser has had experience at both ends. At Partners HealthCare System Inc., a nonprofit network of 10 hospitals in the Boston area, he's implementing CPOE systems at several of his teaching hospitals.

"It's a bear — very complicated, highly invasive of workflow, constantly encountering challenges," he

DIFFERENT PLAYERS, SAME GAME

CIOs and specialists who have implemented hospital safety systems say that while the players are different and the stakes are higher than for other IT projects, most of the success factors are similar.

DRIVE the project from the operational area of the hospital, not IT.

USE a multidisciplinary team that includes doctors and nurses to design the process.

OBTAIN buy-in from all stakeholders, especially top management and the top doctor in each department. Forcing a system on clinicians who don't see the benefits is a prescription for failure.

KEEP all stakeholders informed throughout the process. Clinicians often don't have offices and don't check e-mail, so devise special methods of keeping them up to date.

ENLIST the nurses and other practitioners early and use their feedback to improve the process before attempting to convert the physicians.

PROVIDE good support and resolve problems quickly. Have people on-site during the rollout phases — especially when physicians are involved.

MAKE SURE the system is ultra-reliable. Keep anti-virus software up to date and fully test all patches before implementing them. A computer virus isn't normally a life-or-death matter — unless the computer is monitoring someone's life support.

SET the proper expectations for the project. Don't try to do too much too soon, and explain about trade-offs, such as time versus access to information.

FOCUS on measurable quality and safety goals that relate to saving lives. Don't focus on financials or expect the system to save money.

—CJ Rhoads

says. But unlike Hummel, he doesn't use the term *failure*. "No project is a complete success or a complete failure," he says. "It's a matter of degrees. All projects have problems."

For example, Glaser tells of rocky times during a pilot of an MAR project. "The wireless PDAs and the network were flaky; they just didn't work reliably," he says. "Plus, we didn't really think through the workflow."

Workflow Reworked

Workflow problems can sabotage a hospital safety system because doctors won't stand for the disruption. "If you do it right, implementing a whole system is like ripping out the backbone of a hospital and replacing it," says Paul Ruffin, CEO of Eclipsys Corp., a provider of hospital medical record software in Boca Raton, Fla. "It is pervasive technology."

"The challenge is redesigning the entire workflow," says Jacque Dailey, CIO at Children's Hospital of Pittsburgh. "Success is based upon process improvement, not the technology."

And process improvement requires strong support — from both executives and IT. Dennis Baker, CIO at Sarasota Memorial Hospital, a community hospital in Florida, has been learning about that since 1999, when he implemented a CPOE system without enough support from either group. "For years, we only had 25% of the orders placed online," he says.

Executive backing, although belated, made all the difference. "We finally got the CEO involved," Baker says. The CEO sent a letter to all the physicians, mandating the use of the system within a year. "Now we are proceeding floor by floor with extra support for the clinicians using it," he says. "We are up to 50% and expect to get to 80% by the end of the year."

Although automated hospital systems are expensive and disruptive and doctors complain about lost productivity in the early phases, helping everyone focus on the big picture can improve the outcome. "You have to do this for the right reasons," Hummel says. "and return on investment isn't one of them."

Hummel says that motivation can make all the difference in physicians' acceptance of a new system, recalling a project designed to ensure that specially trained doctors called intensivists monitor critical-care unit patients. "We implemented a video system so that intensivists can monitor 50 beds at a time instead of 10," Hummel explains.

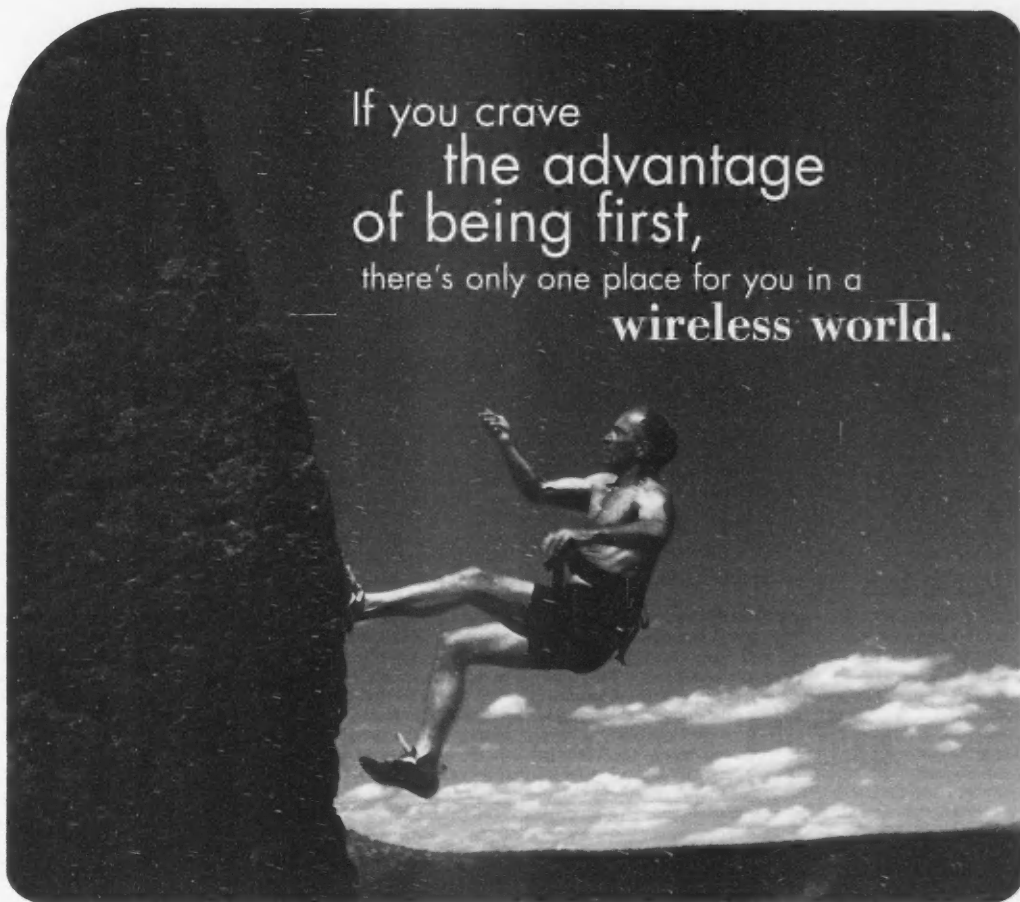
Because there are only a few intensivists available, they were thrilled to be able to monitor more people during each shift. "We decreased fatalities by 25%," he says. "We proved that it works. The cost is over \$5,000 per bed per month, but we saved lives."

Jocelyn Benes, vice president of quality control at Children's Hospital of Pittsburgh, says that when the hospital implemented a CPOE system, "we didn't even measure financial benefits. Our focus on quality was one of the reasons we were successful."

Benes says that appealing to users' dedication to the job is the key to getting their buy-in. "Clinicians are more receptive to doing what's best for the patient than they are to saving money," she explains. "We were successful in decreasing errors, and that's all that mattered to the patients and the staff." **48395**

Rhoads is a freelance writer in the Philadelphia area. Contact her at CJRhoads@ETMAssociates.com.

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IT SURVIVAL GUIDE

RETIRING CIO PAUL INGEVALDSON OFFERS 10 TIPS FOR SURVIVING - AND PROSPERING - IN THE IT JUNGLE.

DEAR COLLEAGUES:

I've been in IT for 40 years, and I plan to retire at the end of this year. Yes, I'm retiring as the CIO, and I'm not being downsized, forcibly replaced or fired. I've been at my current company, Ace Hardware Corp., for 25 years. That's a long time in this day and age of the portable CIO. In fact, *Computerworld.com* reported Dec. 22 that the average CIO tenure is 18 to 36 months.

Over the past 40 years in technology, I've developed some practices that have served me well. Perhaps they can also help you survive in the treacherous world of IT. So here are Ingevaldson's top 10 ways to survive the IT jungle:

10 Don't be afraid to leave IT. It's a great experience, and you'll probably come back. And you will come back as a more well-rounded executive. You will also experience IT from the outside in and better understand people's true feelings about IT within the corporation.

And there is nothing more fun and more daunting than trying to make the revenue line. Most of us manage expenses well, but that revenue line is really a challenge. Believe me, you will gain renewed respect for your users.

9 Don't keep IT in the closet. Spread the word, create excitement and convince people to get on the IT bandwagon. We are in a very exciting, dynamic profession that is changing the life of everyone on the planet. You may sometimes think we are selling reports and screens, but remember: We're creating business-changing

and life-changing systems.

8 Never think you know it all, because you don't. But even if you do, it will change. Read voraciously, and know what's going on. Read outside of your expertise so you can see the world on a bit larger stage. I love *Harvard Business Review*, *The Economist* and *MIT Technology Review*, along with all the other technology magazines and newspapers.

IT MENTOR

7 Understand the corporate strategy and mobilize IT to support it. Be sure you're part of the process, not just the implementer. This is a high priority, and you must make yourself necessary in the strategy meetings. This requires that you think in company terms, not IT terms. This is really a stretch for some of us, and it's where the rubber meets the road.

6 Develop a "cheap" image. For some of us, especially a Norwegian like me, this is easy. IT is an expensive, misunderstood area that is clouded by mistrust and arcane concepts. The last thing you need to do is flaunt your image and act like a know-it-all IT savant. Get rid of the Armanis and the pinkie rings. Be down to earth and talk business-speak, not IT-speak.

5 Don't overmanage IT personnel. Our business is exciting and self-motivating. Provide the proper tools and environment, set the right strategy, and get out of the way. Remember when you were a programmer, and how the worst thing was to

have someone looking over your shoulder.

4 Expect your people to make dates and budgets on projects. Do this by managing the lock-in dates for both and by minimizing specification creep. Missed deadlines and busted budgets give IT a bad name, and they are often caused by uninvolved users. Be sure — no, demand — that you have user involvement in projects. Be strong and vigilant. Sure, some projects will go over, but that should be the exception, not the rule.

3 Don't charge out IT. Operate it as an expense center. I feel very strongly that the need to charge out is an indication that the company doesn't support IT. If you have a process where top executives make the prioritization decisions, then IT is working on the important applications. There is no need to charge out.

If you decide to charge out and thus operate IT like a utility, then it will never be strategic. Nicholas Carr will be right [QuickLink 37990]. Having electricity in the wall won't give you a strategic advantage. It's just a cost of entry into the game. Besides, the charge-out system is a big system that requires a huge amount of processing

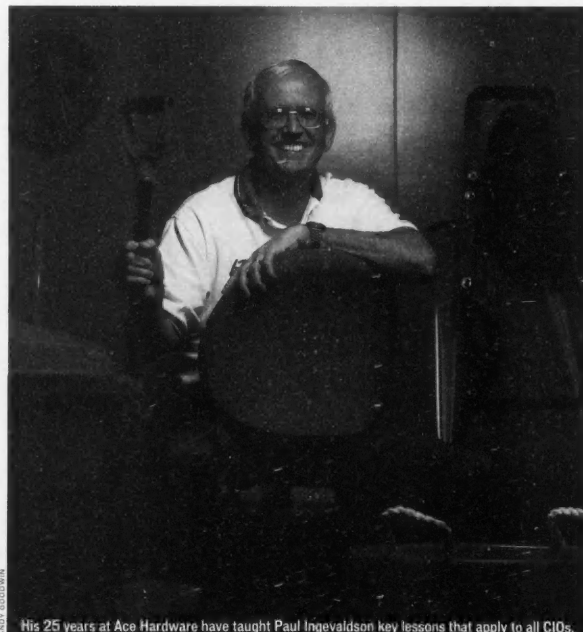
time and data input, and it results in much disagreement with the very users we are trying to nurture.

2 Learn to delegate. If you're answering too many easy questions, you're not delegating enough. Sure, it makes you feel good that you still know the answers, and that is a big thing for an ITer. If you delegate the easy ones and get only the hard ones, you'll have a tougher day, but your people will feel more engaged and the department will move faster. Besides, tough days are why they invented single malts.

1 Force IT onto the plate of all senior executives. They can handle it. It's part of their job, just like finance, marketing and all the other major departments. Just mention that you spend between 1% and 7% of corporate revenue and you want to get them more involved. What are they going to say? You'll be surprised by how much they really want to understand technology.

That's my list. It has helped me avoid some of the pitfalls that are out there, and I hope it helps you. Good luck and have fun. You're in a great business. **Q 48479**

— Paul Ingevaldson



His 25 years at Ace Hardware have taught Paul Ingevaldson key lessons that apply to all CIOs.

No Free Lunch

Open-source software comes with rights and obligations. Here's what that license is really all about.

Nothing in life is really free, says Larry Rosen, and that includes open-source software. As open-source gains traction in business, it's increasingly important to understand the licenses under which it's used. Rosen, who formerly taught programming and database design at Stanford University, is also a founding partner of Rosenlaw & Einschlag, a technology law firm in Los Altos Hills and Ukiah, Calif., and the author of *Open Source Licensing: Software Freedom and Intellectual Property Law* (Prentice Hall PTR, 2004). He talked with Computerworld's Kathleen Melymuka about rights and obligations under open-source.

As an IT manager, why do I need to know or care about open-source licensing? Because you or your company is, or soon will be, using open-source software.

I never realized that licensing was even an issue in open-source. Why do I need a license for something that's free? Because of the problem with the word *free*. It means too many different things in the language. Birds are free to fly. Is open-source software free in that sense?

Then what does it mean? It means you are given the freedom to do certain things with the software — things like use it, copy it, change it, combine it with other stuff. Because of that, what's important is the license under which those freedoms are protected.

What are the key things to look for in an open-source license? What you need to look for is "What am I being licensed to do?" and "What are the conditions that I'm accepting when I take that license?" And therein lies a tale.

Are there any deal-breakers I need to really watch out for? What you need to look out for is what you give up. What are the conditions, because nothing is really free in life. What you have to give up can be expensive. It depends on the license. You may have an obligation to expose your own source code, take a risk, distribute it under the same license. It's not just free.

Can you give me an example of something that might catch a company by surprise? The one that most people are concerned about is if you create a derivative work and distribute it, you're required to disclose your changes and distribute it under the same [open-source] license.

Then I can't use open-source and customize my own software? You can. For internal uses, it's your business. But if you choose to share it with some other company, your obligation under some licenses is to make it available under the same license.

So I can't sell it? No. That's what people think. You can try to sell it, but if you're required to distribute it under the same license, that license allows people to make copies for free, so you have to tell them they can also have it for free.



What is the General Public License and why should I care? The GPL is the archetype, the first and best and most popular and most influential of all open-source licenses. It is the license under which Linux is distributed and many other software packages that are extremely important in open-source. About 70% of all open-source is licensed under the GPL. So it's important to understand it and its legal effects, its strengths and its weaknesses.

Your book has a section on litigation. Why would anyone sue over free software? People sue over intellectual property because it is property and because the stakes are so high and because the legal constructs are not black and white, and so licenses get interpreted and side agreements get made between companies. Lawsuits are usually by people who don't want it to be free — who want to lock it back up again. As open-source becomes successful, people are going to want to try to make it proprietary, to claim ownership over things they don't have rights to. People will sue over what they have sued about since the first case: money and property. ☎ 48482

Intellectual Property

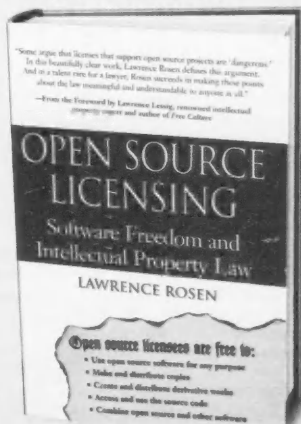
There is much more to software than the disk it comes on. As one California court wrote in 1948, property is a very broad concept that includes not only the tangible but also "every intangible benefit and prerogative susceptible of possession or disposition." Computer software is this kind of intangible property because, under the law, it comes with specific but intangible benefits and prerogatives that can be separately owned and disposed of.

Software is a product of human intellect, and therefore it is a kind of intellectual property. Intellectual property is a valuable property interest, and the law allows its owner to possess and control it. The programmer who writes software — or the company that hires that person to write software — is deemed to be the first owner of intellectual property embodied in that software. That owner may exercise dominion over that intellectual property. He can give it away, sell it or license others to use it. That owner has the prerogative to create copies of the intellectual property, and he or she may prevent others from making, using or selling those copies.

Because of these partly tangible and partly intangible aspects of computer software, it is possible to have different owners own (1) a tangible copy of software purchased at a computer store or downloaded from a Web site, and (2) the intellectual property embodied in that software.

Never confuse these two aspects of intellectual property, for the laws apply differently to each.

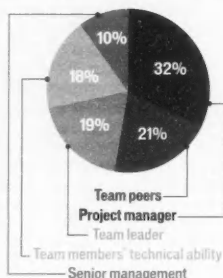
Excerpted with permission from *Open Source Licensing: Software Freedom and Intellectual Property Law*. Copyright 2005 Lawrence Rosen (Prentice Hall PTR, 2004).



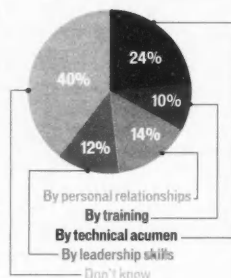
Career Watch

CLOSE-UP: IT Project Leaders

Which has the most effect on the motivation of software project team members?



In your organization, how are team leaders usually selected?



BASE: Software project teams from more than 250 development organizations
SOURCE: Cutter Consortium, Arlington, Mass., 2004

Grooming Next-Gen IT Pros

In a 2004 IBM survey of 450 global CEOs, 75% cited education and a lack of qualified candidates as the issues that will have the greatest effect on their businesses over the next three years.

IBM is aiming to better prepare graduates for tomorrow's IT jobs by providing colleges and universities with a wide range of education benefits and programs designed to teach students open standards skills. In addition to offering 40 software programs free of charge through a Web-based portal, the company is offering educators a special rate on hardware. Under the new IBM Academic Initiative, the vendor will also assign tech-

nical teams to various universities to assess their IT curricula and provide special training and skills transfer for faculty and staff.

Universities participating in the pilot program include the University of Houston-Clear Lake, Indiana State University, Worcester Polytechnic Institute and Universidade de Brasilia. IBM says it developed the program in response to the need for IT professionals with skills in open-standards-based products. Linux, for example, is the fastest-growing operating system, according to IDC. Java, meanwhile, is used by more than 70% of all enterprises, according to Gartner Inc.

—Julia King

ASK AN IT LEADER

Roy E. Lowrance



TITLE: Chief technology officer

COMPANY: Capital One Financial Corp., McLean, Va.

Q&A

Lowrance is this month's guest Premier 100 IT

Leader, answering readers' questions about job skills and career strategies. If you have a question you'd like to pose to one of our Premier 100 IT Leaders, send it to askaleader@computerworld.com and watch for this column in print and online.

I am currently a junior in college, focused on networking. But my school isn't very strong in that field. What can I do on my own to develop skills that will make me competitive with students from other schools? There are many things you can do to make yourself more marketable. First of all, make sure you take advantage of every opportunity to get a well-rounded education. Having strong expertise in one or more specialized areas is important, but most employers are interested in candidates with diverse skills and knowledge in many different fields.

In addition to technology courses, take classes that will help you develop strategic and critical thinking skills. If you can think strategically and understand business issues, you will be better able to position yourself as a valued technology resource rather than just a commodity. To develop your networking skills, keep current with the latest trends by reading books and trade journals and utilizing Internet resources. Also, look for opportunities to apply and expand your technology experience through part-time work, internships or even

volunteer work. If you are fairly certain you want to pursue a career in networking, you might want to consider transferring to a school that has a strong reputation in that field.

How can I exploit my in-depth knowledge of both software engineering and biotechnology while hedging bets against job outsourcing? Combining a specialty (such as software engineering) with in-depth knowledge of a growth industry (like biotechnology) is a great strategy. To enhance your marketability, keep up with innovation in both your specialty and industry. In addition, look for ways to provide unique value to your future employer. This requires keeping current with what's happening in the IT marketplace so you don't find yourself in a role that is viewed as a commodity. At Capital One, we choose software engineers/architects who can take a strategic view of not only the IT organization, but also the company as a whole. The wider view enables them to create better architectures and better systems for the company.

Should I plan to leverage the portfolio of white papers, audits, analyses and case studies I have created in my career when interviewing for a director or CIO position? Some argue that writing skills are irrelevant to the CIO position because verbal and leadership skills are more important. Strong writing skills are valuable regardless what career path one takes. Effective leadership requires being able to convey information and strategies to people in a clear, concise and persuasive manner, whether verbally or in writing. A strong portfolio that demonstrates your ability to communicate effectively through a variety of writing styles will make a favorable impression on most hiring managers.

More and more, business leaders are looking for IT professionals who can be strategic thinkers and truly understand the nuts and bolts of business dynamics. Being able to demonstrate your strengths in writing is an added tool in your arsenal. Don't forget to make sure your résumé casts you in the best light. **48706**

Staying Power

Is the retention of your IT staff becoming more or less important as the economy improves?

BASE: 1,400 CIOs at U.S. companies
SOURCE: Robert Half Technology, Menlo Park, Calif., July 2004

Much less important
1%

Somewhat less important 5%

33%
Somewhat more important

25%
Much more important

36%
No change

QUICK HITS

IT GOVERNANCE

How would you describe your IT organization?



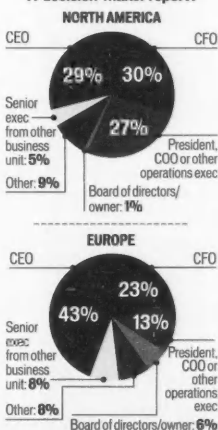
Base: 867 IT decision-makers at North American companies

In mixed organizations, which IT activities report primarily to business units rather than to IT?



Base: 309 IT decision-makers at North American and European companies. Multiple responses allowed.

To whom does the CIO or senior IT decision-maker report?



Base: 1,263 IT decision-makers at North American and European companies. (Percentages may not total 100 because of rounding.) Source: Forrester Research Inc., Cambridge, Mass., July 2004.

EDWARD SMITH

The Changing Face of Information Security

HACKING, CRACKING, global worms and viruses, netspionage, social engineering, internal theft, employees with malicious intent, physical terrorism and cyber-terrorism — these are just some of the

security challenges organizations face. All the ways we have allowed data to be shared have made undetected theft of sensitive information exponentially easier. While efforts to extend data to the edge of the organization for productivity's sake have succeeded beyond our expectations, attempts to secure that data have failed miserably.

We are starting to realize that information security is a process in support of the organization, requiring an understanding of the forces that drive business both internally and externally. A security program can be designed to effectively withstand business change only when the organization and the IT department work cooperatively.

Security Blunders

Organizations usually react to threats by implementing some new piece of defensive technology, but while that may appear to be the quick solution, it is often the last thing you should do. Technology without proper strategy and business value can actually leave you more vulnerable.

One publicly traded company redesigned and replaced its firewalls before it acquired another publicly traded company. The parent company was focused on shoring up its infrastructure, but it failed to concern itself with the new organization's environment prior to purchase.

In this case, the first dollar the purchased company transacted after the



EDWARD SMITH is director of security solutions at Forrester Solutions Group Inc., an IT consultancy and infrastructure firm in Skokie, Ill., specializing in cost and risk management. Contact him at esmith@forrester.com.

merger put the parent company at risk. All the parent company's security precautions were in vain, since it had not taken into consideration the security controls of the company it was acquiring. And the CEO and CFO were liable for all noncompliance issues in both companies.

Building a Compliant Organization

The introduction of mergers or mandates like the Sarbanes-Oxley Act com-

plicate security, and organizations need to develop programs that take them into account. With compliance taking a big bite out of IT budgets, companies need to make sure that every dollar spent on technology gets them closer to their compliance goals. Business-driven, top-down strategies are far better than the typical ground-up approach of reacting to threats. Here are some tips for doing this right:

- Understand and fully interpret the governance and compliance issues you are faced with today. Realize that you may be subject to multiple mandates (Sarbanes-Oxley, HIPAA and California's SB 1386, for example) and that it's important to understand all of them before planning to address any single one.

- Employ an external organization to provide a baseline or "gap" study of your environment that includes reviewing your compliance drivers, understanding your security environment as it stands today and prioritizing recommendations. Engaging a con-

tractor to do this sidesteps internal politics that could get in the way of exposing security gaps.

- Once a gap is identified, have a conversation with management about how IT will deliver process and technology to address the business issue of compliance. Get management buy-in.

- Create a compliance road map. Specifically address how best to solve each compliance problem through the chosen combination of technology, processes and documentation.

- Build incident detection, monitoring and response programs, realizing that the optimal security environment starts with a clean slate, not with the addition of more technology to an existing mess.

- Develop security awareness and training programs, then prepare all employees to understand their security responsibilities.

Closing the Gap

How will the changing face of information security affect the corporation, and how do we establish an effective business strategy to help it evolve? You must realize that technology alone will solve nothing and recognize that security requirements have evolved from a technology issue to a business issue.

This change requires challenging and rethinking the traditional approach to security. Organizations need to see security as a business objective, or even as an enabler of new technology initiatives, rather than as something forced upon them. This requires communication among business units to develop an environment that is compliant-ready and a culture that is security-aware. Only by taking a proactive approach that recognizes that security extends beyond IT will companies stay ahead of game. **48649**

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IT Careers: Illinois, Chicagoland Bridge Old to New Industry Age

In an era past, Chicago and the state of Illinois claimed fame in meat packing, transportation, heavy machinery, brewing, and corn. Today's economy is based squarely on technology with more than 7,000 IT-specific companies and a host of heavy IT users ranging from Baxter International to Argonne National Laboratory.

While most Illinois technology companies were hiring in the hundreds in the 1990s, 2004 shows listings in much smaller numbers -- 40 to 50 specialized professionals for larger firms and five to 10 for dozens of smaller companies -- for entry level and senior management IT jobs. Allstate Insurance, long a leader in information technology use, has better than 40 IT jobs listed on its website, while food giant Archer Daniels Midland has listings that include bioinformatics, application support, analysis and opportunities for academic interns.

Among the coups for Illinois and Chicago was the announcement in fall 2003 that Chicago's McCormick Place will host the 2006 Biotechnology Industry Organization International Conference and Exhibition. State leaders point to the win as host site as an indicator of leadership in biomedical device development, pharmaceuticals, agri-science, bio remediation, and research and development innovation.

However, the region is also known for a heavy load of consulting talent, ranging from giants Accenture, Mercer and Hewitt to locally operated firms. Crain's Chicago Business lists its technology

who's who as Michael Birk, soon-to-retire CEO of Tellabs; Robert Blackwell Sr., CEO of Blackwell Consulting Services, John Edwardson, CEO of CDW Corp., Richard A. Forsythe, CEO of Forsythe Technology Inc., Gale E. Sayers (yes the football great), CEO of Sayers Group LLC, and Judith A. Sprieser, CEO of three-year-old data synchronization firm Transora Inc. In addition to these home-grown IT and software development groups, the listing includes Carol Potts, area vice president for Hewlett-Packard, and Allan Duffy Gaynor, a global business segment leader for IBM.

The trend with these, and others such as Allstate Insurance, Archer Daniels Midland, Motorola and Baxter International, is in hiring people with specific, advanced skills such as IT architecture, analysis, development and disaster recovery, as well as IT support -- in smaller numbers, but still hiring.

The jobs are clustered in the Chicago area, Springfield and east of St. Louis, as well as a software development core that is scattered throughout rural Illinois, including the Carbondale/Southern Illinois University region. According to John Barr, project manager for the IT Cluster in Illinois' Department of Commerce, the state's IT strength is in hardware/networking, software and data services. Software has grown at the fastest pace, with total employment increasing by better than 90% in the past decade, driven by growth with companies such as Platinum Technology, SPSS, SoftNet Technologies and Spyglass.



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SHOMEX, long known for its diversity job fairs, is launching a new regional-focused product to meet technology-hiring requirements. The first show, according to Cris Levy, vice president of marketing, is Jan. 19 at the Navy Pier in Chicago. More than 30 companies are expected to participate in the job fair.

For more information about IT Careers advertising, please contact: Nancy Percival
Vice President, Recruitment Advertising
800.762.2977

500 Old Connecticut Path
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Produced by Carole R. Hedden

Novasoft Information Technology Corp., a software consulting firm & web development co. is seeking Programmer Analysts w/one of the following sets of qualifications to work in the Minneapolis area:

*2 yrs exp. designing/developing using SQL Server, Visual Interdev 6.0, VB 6.0, ASP, JavaScript & HTML

*1 yr exp. designing/developing using Lotus Notes, Domino & Windows NT, & setting up Domino Servers & Lotus Notes on Windows NT

*2 yrs exp. devel/testing strategies using Test Manager, Rational Clear Quest, Rational Clear Case, WinRunner & LoadRunner

BS in Comp. Sci., CIS, Engrg, Electronics, Busns or Math + 2 yrs exp. as a Prog. Analyst, Sr. Engr. Syst. Analyst, Consultant or QA Analyst/Engr. Info Excellent salary/benefits pkg. Send resume to: Novasoft Information Technology Corp., ATTN: HR Dept., 8400 Normandale Lake Blvd, Ste 920, Bloomington, MN 55437.

Lead SW Dev Engineer - Lead a team or be able to independently design, develop, code, test & debug new SW or make significant enhancements to existing SW of moderate complexity using knowledge of Oracle 8.0 - 8.x; Unix shell script, C++, JavaScript, HTML, SQL, PL/SQL; Oracle Developer 2000 & Oracle Designer 2000. Develop solutions across many disciplines & be responsible for explaining solutions & procedures. Apply principles, theories & concepts & use methodologies, tools, documentation processes & test procedures to complete projects related to moderately complex SW. BS in Comp. Sci. Engrg. or related field & 3 yrs exp. & working/theoretical knowledge of DB Development/Admin in Oracle 6.0-8.x; Programming using Unix Shell Script, C++, JavaScript, HTML, SQL, PL/SQL & Oracle Developer 2000/Oracle Designer 2000. \$73,333/yr. M-F 9-5 hrs. Denver, CO. Must have proof of legal authority to work permanently in U.S. Apply by email to: Workforce Development Programs, PO Box 46547, Denver, CO 80202. Ref job# CO5089677.

Software Engineer - Applications Sought by Englewood Colorado consulting company to work in various unanticipated locations throughout the U.S. Duties: Develop, create and modify general computer applications software or specialized utility programs. Analyze user needs and develop software solutions. Design software or customize software for client use with the aim of optimizing operational efficiency. Analyze and design databases with an application area. Use of Oracle, JavaScript, Perl, Sybase, Intershop, ASP, HTML, SQL and Windows NT. Regs. Masters or equivalent in Computer Science, Computer Engineering, Engineering (any field) or related field. Plus 1 year in the job offered or 1 year in a related occupation, including Programmer Analyst, Internet Specialist or Programmer. \$75,000/year, 40hrs/wk, 9AM-5PM. Respond by resume to: WORKFORCE DEVELOPMENT PROGRAMS, PO Box 46547, Denver, CO 80202, and refer to Job Order No. CO 5089607

Senior Software Architect, Delray Beach, Florida: Analyzes existing functionality and programming of current system and evaluates client requirements for new or modified software system. Within time and cost constraints analyzes, researches, designs, develops, and customizes in Unix financial applications in a client-server environment utilizing Shell Scripting, C/C++, SQL, Motif, Perl and SYBASE. Prepares, plans, develops, codes, implements and documents software systems using detailed design documents, object models and data flow diagrams including data structure, algorithm and procedure flow. Requirements: Master degree in one of the following: Computer Science/Engineering, Mathematics, Computational Science or related area and two years experience in the job offered or a Ph.D degree and six months experience. Wages Offered: \$185,000 per year. Hours: 40 hrs per week: Monday to Friday, 9:00am to 6:00pm. Send resume to: Workforce Program Support, P.O. Box 10869, Tallahassee, FL 32302-0869, Attn: EH, Job Order FL-2626398

R Systems, Inc. is a global information technology services company and it has multiple job openings for the following positions at its corporate office in Sacramento as well as Project sites throughout the United States:

- Applications Programmer
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- Software Engineers
- Systems Analyst
- Network Analyst
- IT Project Managers
- Business Analyst
- Sales Engineer
- Programmer Analyst
- Sales Manager
- Database Administrators
- Market Research Analyst

Minimum requirement: Bachelor's degree or equivalent or one year experience in the job offered. All positions may involve relocation to project sites.

Submit detailed resume and position applied for to:

Attn: Venkatesh Sundararajan
5000 Windplay Drive Suite 5
El Dorado Hills, CA 95762

Database Analyst, Design, implement, maintain database, web pages, software tools and documentation for marketing and financial software applications. Must have Bachelor's in Information Systems, Accounting or related, 1 yr. exp. and knowledge of Microsoft SQL database programming, ASP programming, C, Visual Basic, HTML and Java programming. Send resume to Infinity Investments Inc., Attn: Jim Balvanz, 373 Collins Rd. NE, Cedar Rapids, IA 52402.

SW Engineers to analyze, design business apps for SAP R/3, ABAP Workflow, C++, Java, VB, Oracle, SQL, etc. under Windows, UNIX OS; analyze business processes to determine reqs & generate reports; prepare documents, flow charts and programming specs; create and test prototypes for client approval and rapid app development; train users in business app usage. Require: MS or foreign equiv. in CS/Engrg (any branch)/Math & 1 yr exp in IT. High salary. F/T position. Travel Required. Resume to: HR, Smartsoft International, Inc., 3565 Johns Creek Court, Suwanee, GA 30024.

Computer Support Specialist To support multiplatform computer hardware and software systems users in PC and Unix environment and maintain the company's NT Servers and website. Require B.S. in Computer Information Systems, Computer Engineering or closely related field and proficiency in both Windows and Unix operating systems and in ASP, ASP.NET & SQL Server. 40hrs/wk. Send resume & cover to: HR, HGS Engineering, Inc., 1121 Noble Street, Anneton, AL 36201. Job Code: AL-KS.

Stanford Technology Partners Inc. is an IT consulting company with its clients across the USA. We seek a Peoplesoft EPM Functional Consultant. Duties include reporting tool selection, identifying legacy system reporting & architecture, conceptualizing & implementing reports for Peoplesoft reporting tools; create conceptual design docs, assisting staff on docs, identifying gaps in source system, prepare EPM module to migrate and members for review and implementation. Job is located in Tallahassee, Florida or unanticipated locations throughout the USA. If interested, please send resume to: STP, 289 Boston Tpk, Shrewsbury, MA 01545. E-mail: recruiter@stpcincusa.com

Programmer Analyst, auto parts export. Evaluate user req & implement specialized computer programs, inc inventory, US & export, customs & fiscal req. SBT accounting system in visual fox pro language, warranty/defect control, & pricing/cost analysis/availability. M-F 9-5 \$51,000 yr. Bachelor in computer field or equiv ed & exp & 2 yrs exp. Resume to Workforce Program Support, PO Box 10869, Tallahassee, FL 32302-0869. Re: Job Order #FL2544978.

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Senior Programmer Analysts to lead teams to analyze, design, develop, implement appls using SAP, C, J2EE, JSP, RMI, Websphere, Weblogic, and EAI tools like Mercator, Sybase, Visual Webmethods, etc. under Windows/Unix OS; responsible for data modeling, gap analysis, etc.; involve in system/business analysis; develop functional specs based on business reqs; design, develop interfaces and perform integration of various modules; test team members/train end users. Require BS or foreign equiv in CS/Engg. (any branch) & 3 yrs exp in the IT field. Travel involved. F/T position, competitive salary. Resume to: HR, Korus Software Services, 333 Swanson Dr, Ste 124, Lawrenceville, GA 30043.

Multiple openings for Programmer/Systems Analysts. Software Engineers: Must have BS in Comp Sci or rel field plus 2 yrs exp in requirement analysis, design and development, resolving the technical issues. Wipro in 2 or more of the following skills: Oracle Applications (GL, AP, AR, FA, PO, INV, OR), BOM modules ver 11/11i) Oracle Reports, forms, Discoverer, Unix, Solaris, C/C++, JAVA, XML, PeopleSoft, Cognos, Win Load Runner, DB2, PL/SQL, MS-SQL, Sybase, PB, VB, ASP, .net & Windows. Resumes to: Z3 Technologies Inc., 11400 W Bluemound Rd, Wauwatosa, WI 53226. email: resumes@z3tech.com

Programmer Analyst: program, implement, edit, and maintain user application programs. Troubleshoot, compile and document program development. Req. Bachelor's degree or foreign equivalent (based on education or work experience, or both) in CS, CE, Electrical & Electronic Engineering, MIS, ME, Electronic and Communication Engineering or related field with proficiency in either Baan, Oracle Financial ERP, Java/Weblogic/WebSphere, Informatica, Siebel or C++/Corba. 40hr/wk, 9:00 a.m.-5:00 p.m. Send resume to Visionsoft International, Inc. 1842 Old Norcross Road, Suite 100, Lawrenceville, GA 30044.


Need IT Professionals like Software Engineers, Programmer Analysts, IT Business Managers for company located in Bristol, PA. MS/BS Degree or equivalent in C.S, CIS, MIS, Engg (any), Math, Phys / rel field and/or rel work exp. All positions may involve travel &/or relocation to project sites throughout the U.S. Mail resumes to HR at Systems People, Inc. 1200 New Rodgers Road, C 7B, Bristol, PA 19007. State the post applied for.

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IT PROFESSIONALS

Senior Consultant/Technology Solutions (Glen Mills, Pennsylvania and other locations throughout the U.S.) Design and implement leading business application software to provide solutions for clients focusing in the manufacturing and consumer business industries. Engage in design and implementation of process and technology solutions for supply chain optimization, production planning and scheduling, quality management, business to business, customer management and business intelligence. Scope and plan functional requirements along with design, development, customization and implementation of applications using SAP R/3, SAP Business Intelligence and SAP Industry Solutions and customization of supply chain optimization using i2 technologies. Salary \$77,126 per year. Mon-Fri, 9:00 am to 5:00 pm. The position requires: Bachelor's degree in Computer Science, Computer Engineering, IS, MIS or related + 2 years of experience in the job offered or 2 years of experience as Technical Consultant, EPR Integration Engineer, SAP Production Engineer or related occupation. Related experience must include utilization of configuration, development and business technical data warehousing skills and include SAP R/3, SAP Business Intelligence, SAP Industry Solutions and i2 Technologies. Please send your resume, referencing Job Order Number **WEB444831** to the: PA CareerLink, FL Unit, 235 W. Chelton Avenue, Ft. Lauderdale, FL 33344 EOE.

Novasoft Information Technology Corp., a staff consulting firm & web development co., is seeking a Programmer Analyst to work in the Minneapolis area who will be responsible for design, development & implementation of client-server applications using current IT skills. AS in Comp. & Info Sci., Chemistry, Math, Business or Engng & 2 yrs exp as Prog. Analyst, Staff Engr, Staff Consultant or Proj. Mgr req'd. Must have 2 yrs exp w/ Arcnet/Ethernet protocols, CSMA/CD protocols, WAN solutions (PC Connect & Netware), TCP/IP, Win NT & IPX/SPX, & 2 yrs exp w/ user & system requirements analysis. Excellent salary/benefits pkg. Send resumes to Novasoft Information Technology Corp., ATTN: HR Dept., 8400 Normandale Lake Blvd., Ste. #201, Bloomington, MN 55437.

Venadi Technologies has the following openings for individuals to work at client sites throughout the U.S.: Application Developer with exp in EDI, Java, Websphere, DB2, Mercator; DBA with exp in DB2, Oracle, Solaris, Siebel and Decision Support Products; System Analyst with exp building n-tier static/web applications, Cold Fusion, CFMX, HTML, Java, JSP, CSS, Oracle, SQL; System Programmer with exp in DB2 stored procedures, C++, Cobol, Java, MVS Internals, JES2, OS; System Analyst with exp in C, PeopleSoft, RTOS, pSOS/Win/Unix, Texas Instruments, DAC's and ADC's; Software Engineer with exp in Clarify modules, Java, EJB, JSP, Weblogic, Oracle, J2EE, MQ Series, Tuxedo, Rational Rose, ClearQuest, Clear Case, PeopleSoft Java Programmer with exp in PeopleSoft, Java, Oracle, Discoverer, Developer; Client Server Software Engineer with exp in eCRM packages, Siebel, Vantive and Onyx; ETL Programmer Analyst with exp in ETL tools in large scale Data Warehousing Projects. SQL, Oracle, DB2, Solaris and Rational Tools. All applicants must have BS in Computer Science, Engineering or related. Apply to: Venadi Technologies, 20 Trafalgar Square, Suite 400, Nashua, NH 03063.

IT Professionals, exp'd, sought by a Software Consulting Co., in any of following areas: (i) J2EE Architecture, weblogic or planet, JavaScript & XML/XSLT, (ii) Oracle Forms, Reportwriter & Database Dgn (iii) Lotus Notes, SDC, PIVCS VM, Tracker relational databases & IBM MQ Series (iv) Datawarehousing Database using Informatica, Powercenter, Powerconnect, Cognos Reportnet & Metrics/Framework & (v) C++, ASP, VSS, SQL Server, XML & Net BS in Comp Sci, Eng or related field. Applicants must be willing to relocate/travel to various unanticipated locs throughout US. Resume to: DattamanUSA, Attn: HR, 316A West Lincoln, Way, Ste 15, Chayenne, WY 82001 or email to jobs_wy@dattamanusa.com

IT PROFESSIONALS

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Please send your resume, referencing Job Order Number **WEB44483** to the: PA CareerLink, FLC Unit, 235 W. Chelton Avenue, Philadelphia, PA 19144. EOE.

QA Engineer Req #608Design and develop Dynamics quality assurance test applications using AGL, ADM2, Dynamics Tools and distributed computing technologies. Install and configure applications in both Windows and Sun operating systems. Assist technical support personnel with product issues, validate product defects and report using internal defect tracking system. Must have B.S. in CS + 5 yrs exp. or M.S. + 6 mos. exp. in software development. Must have knowledge of Java, XML, OOP, RDBMS, PROGRESS, AGL, ADM Tools and Dynamics. Interested applicants should submit resumes to S. Fendris, Progress Software Corp, 14 Oak Park, Bedford, MA 01730 - Equal Opportunity Employer. For immediate consideration, please visit our career page at http://careers.peopleclick.com/Clients/ProgressSoftware/BU1/External_Pages_PSC/Jobsearch.htm and apply online, referring to the requisition # for the position for which you are applying.

Jr. Programmer Analyst, Assist P.A. in researching, designing and developing sw for integrated Business-to-Business protocol interfaces using middleware SeeBeyond e*Gate integrator suite and diverse sys. w/in enterprise using message based brokering sw. Test sw on ALX servers and fine tune app. using various UNIX memory mgmt. tools. Assist in creating and analyzing data back up scripts and in UNIX. Assist in bldg. real time and batch mode J2EE comp. app. using J2EE technologies such as servlets, JSPs, JMS, JNDI, and JDBC and app. servers, which include IBM Websphere, BEA Weblogic and Apache Tomcat. Req: BS in comp. Info. Sys., comp. Sci., or related area. 40hrs/wk. Job/Interview Site: Des Moines, IA. Send resume to Chuck Gutta, Emprise Consulting LLC @ 2915 Redhill Ave. # F202, Costa Mesa, CA 92626.

Jr. Programmer Analyst, Assist P.A. in researching, designing and developing sw for various business problems using J2EE and object-oriented design principles and technologies incl. UML and Waterfall models, and RUP process. Assist in testing sw solutions using Java, J2EE, JSP, Struts, Servlets. Swing on Unix and windows NT. Assist in developing sw for SQL Queries and stored procedures on SQL Server and Oracle. Provide test cases and other doc. in CMM 5 standards. Req: BS in comp. Sci., Comp. Eng., or Elect. Eng. 40hrs/wk. Job/Interview Site: Des Moines, IA. Send Resumes to Emprise Consulting LLC, Attn: Chuck Gutta, 2915 Redhill Ave., # F202, Costa Mesa, CA 92626.

Seeking qualified applicants for the following positions in Collier, TN: Senior Project/Process Analyst. Perform project planning and analysis and provide project leadership for IT projects, processes and/or on-going programs. Requirements: Bachelor's degree or equivalent in business, computer science, MIS or related field plus 5 years of experience in planning, project management or process analysis of IT projects. Experience with either SQL, ASP or CSP; either Crystal Reports or Crystal Enterprise; and Windows 2000 Server also required. Master's degree in appropriate field will offset 2 years of general experience. Submit resumes to Roger Wright, FedEx Corporate Services, @ FedEx Park, way Room 108, Collierville, TN 38017. EOE M/F/D/V.

Principal Software Engineer: Primary responsibility for the development of networking software. Responsible for functional spec dev, arch design, implementation and verification. MS or foreign equiv. in EE or CS plus 5 yr. exp. that must include 3 yr. with some or more network protocols including IP, TCP, ARP, DHCP, DNS, SNMP and firewall. Must be familiar with IP QoS protocols and RFCs. Must have development exp. with Linux and in C/C++. Please send resume to Ucentric Systems, 2 Clock Tower Place, Suite 550, Maynard, MA 01754, Attn to Pat Riley.

Business Analysts to gather, analyze, document, propose systems solutions; lead JAD sessions to analyze, define user business reqs, process descriptions, use cases, scenarios using rational, sas, etc.; re-engineer business processes/procedures, define/document data models using SSAD, COAD, RUP methodologies; analyze system performance to understand exceptions, anomalies, problem areas; provide direction/assist project teams. Require Bachelors in Business/Mgmt/CS/Engineering with 2 yrs or related exp. Competitive salary. Travel involved. FIT Resume to: HR, Bahwan Cybernet Technologies, Inc, 209 West Central Street, Ste 312, Natick, MA 01760.

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System/Programmer analysts, IT engineers needed by E IT professionals, Inc. to design system applications to meet client's requirements using Java, Oracle, VB, Word, Tech Unix, SQL, SAP, JSP, J2EE, MS Tech, etc. BS/MS with IT exp. required. Contact: pete@profs.net. EOE. No calls.

OTS (Object Tech Solutions) has multiple openings for IT professionals (software engineers, system/program analysts, DBA, etc) to design and develop applications using various skills such as VB, Oracle, Java, WebSphere, SQL, SAP, Req. MS/BS with exp. Contact resumes@ots-usa.com. EOE.

Paradigm Technologies is looking for program/system analysts, DBA, sys engineers. Candidates must have BS/MS with experience. Good skills in C/C++, Java, Oracle, WebLogic, VB, HTML, ERP are plus. Traveling required for some jobs. Please apply at jobs@paradigmtek.com. EOE. No calls.

Stryon, a leader that provides Software Transformation Solutions, looks for IT professionals to develop our own migration products, .NET and IASP & our bridging middleware products, iHUB and R-JAX. Must have BS/MS with IT exp. Please send resumes to contact@stryon.com. EOE.



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Global Consulting is looking for programmer/system analysts, software engineers. Candidate must have BS with IT experience. Good skills in C/C++, Java, Oracle, EJB, J2EE, WebLogic, VB, HTML, etc. plus. Traveling is required for some positions. Apply job@g-c-g.net. EOE. No calls.

Systems Analyst sought by large employer in Electronic Print Svcs Industry. Req. BS in Eng. CS or MIS. Min. 2 yrs IS exp in a high speed digital print technology envmt & using document print/print image formats incl. Xerox MetaCode & DJE, IBM AFP, Adobe PDF, font languages, font edit tools, document dsgn tools. Min. 2 yrs exp using Process Automation on multiple platforms (IBM MVS, Window, Unix, HS Printers). Min. 8 yrs exp w/C++/VB, MS Access, SQL, MicroTech, IMR Alchemy, Elvik & Computel. M-F 8-5. Respond to Scott Erickson, HR Mgr, Moore Wallace, Business Communication Svcs, 630 W. 1000 North, North, UT 84321.

eToys Direct seeks applicants for the position of Web Applications Developer in Denver, CO to design and develop custom web-based software applications. Requirements include bachelor's in computer science or related field and experience in designing and developing web-based applications. Requirements also include working knowledge of TCL/TK, Expect Programming Language, Oracle Development and Python Scripting Language. Respond by resume to Gigi Healy, eToys Direct, 1099 18th St., #1800, Denver, CO 80202.

Database App Engr - Design, develop, & impl. RDBMS util. SQL & multi-tiered distributed apps util. VB, ASP, & HTML/XML to run on Windows NT cts. Provide on-site info, systems consulting to corp. clients in order to maximize info. system efficiency. REQ: MS in CS, Math, Physics, or any Engineering discipline. * 2 yrs of exp in job offered, or 2 yrs of exp as a Database Analyst, or Database Design Analyst. Salary: \$65,000 to \$80,000. DOE. Incl. beneis, 40 hrs/wk. EOE. Job loc. Various unanticipated locations throughout US. Apply by resume only to: Job #C0508782, Workforce Development Programs, P.O. Box 46547, Denver, CO 80202.

Computer Support Specialists - needed for various unanticipated locations in US to support clients' technical efforts in building and configuring computer systems, performing network admin and hardware troubleshooting. BS in Mechanical/Electrical Eng reqd. 40 hr/wk, \$20+/hr. Send resume w/ ad to Ms. Shippe, OAO Services, 2266 South Dobson Rd., #209, Mesa, AZ 85202.

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\$52,850/year, Mon-Fri 9:00am-5:00pm. The minimum requirements are a Bachelor's degree or equivalent in Computer Science, Engineering (any), Information Systems, Mathematics, or Business Administration plus 5 years of experience in the job offered or 5 years of experience as a Senior Consultant, Consultant, or Software Engineer. Or regard a foreign degree to be equivalent to a U.S. Bachelor's degree as determined by an accredited foreign credentials evaluation service. Related experience must also include at least 1 year of Siebel application development, Siebel enterprise integration development, utilization of Siebel Enterprise Integration Manager, integration of Siebel with other applications including SAP or Oracle and development of Siebel reports. Please send your resume, referencing Job Order Number WEFBA0031 to the PA CareerLink, FLC Unit, 235 W. Chelton Avenue, Philadelphia, PA 19144. EOE.

Systems Analyst w/SCSA needed at client sites to design, develop, code, test, debug, modify & implement prgs; provide Tier 3 support of Web, Mail, DNS & provisioning Internet services; design & implement high-availability Unix systems; tools incl: JDK, Perl CGI, HTML, Veritas Volume Manager & Cluster Server, NetBackup, CheckPoint Firewall, Cisco Routers, Foundry Switches, TCP/IP networks, Sun E420, SunE250, Solaris, RedHat, Oracle, Sun StorEdge A5200, NETAxp F760, DNS, IIS & NFS. Apply to: Global Consultants, Attn: Hiram, 25 Airport Rd., Morristown, NJ 07960.

Computer Programmers needed. Seeking qual. candidates possessing BS or equiv. and/or rel. work exp. Part of the res. rel. work exp. must include 2 yrs working w/ Java and XML and 1 year working with .Net; experience can be simultaneous. Duties include: Develop & write programs. Configure HW/SW. Analyze & implement remote control of Software packages. Work with Java, SQL, Linux, .NET, & XML. Send res., ref. & sal. req. to Applianz Technologies, 322 S. Mosley, Wichita, KS 67202.

Systems Administrators to plan, design, install, maintain and administer LAN/WAN networks; install, configure, administer Windows NT, IIS & SQL Servers; maintain backups and provide support for users; create, maintain user accounts; manage communication systems including Mail servers; evaluate new/existing systems, recommend future IT strategies. Require: BS of foreign origin in CS/Engg. (any branch)/Buss. with 2 yrs exp. in Sys Admin/Sys. Mgmt. F/T Travel Involved. High Salary. Resumes to: HR, Fourth Technologies, Inc., 985 Tollgate Road, Ste 1, Elgin, IL 60123.

Programmer 1. Under supervision, design and implement applications and database report tools using Java, JSP and stored procedures development environment; maintain and oversee the coding standards; provide technical support for resolution of customer issues and function as mentor to other Software Engineers on development standards and methodology. Must have Bachelor's in Computer Science, Engg. or related, 1 yr. exp., and experience must include working with Java, JSP, Struts, XSLT, WebSphere, ClearCase, Rational Rose and Crystal Reports. Send resume to Praxis Technology Group, LLC, Attn: Mark Loomis, 1500 NW 118th St., Des Moines, IA 50325.

Jr. Programmer Analyst, Assist P.A. researching, designing and developing s/w for various business problems using J2EE and object - oriented design principles and technologies incl. UML and Waterfall models and RUP process. Assist in testing s/w solutions using Java, J2EE, JSP, Struts, Servlets, Swing on Unix and Windows NT. Assist in developing s/w for SQL queries and stored procedures on SQL Server and Oracle. Provide test cases and other doc. in CMM 5 standards. Req: BS in Comp. Sci. or Comp. Info. Sys. or Comp. Eng. 40 hrs/wk. Job/Interview site: Des Moines, IA. Send resume to Emprise Consulting LLC, Attn: Chuck Gulla, 2915 Reddy Ave., # F202, Costa Mesa, CA 92626.

Control Systems Designer wanted by construction supplies mfr in IL to design special controlling systems/software, design/diagram structures & circuits. Provide all aware prgm reqmt specs; eval control dsgn systm models w/physical models. Must have Bach or equiv in Comp Sci. Respond to: Mr. Bob Kuzy, Universal Form Clamp, Inc., 840 S. 25th Ave, Bellwood, IL 60104. No calls.

A global software development company headquartered in Newark, DE is seeking Software Engineers for Multiple Openings.

Duties include: Research, design and testing of software applications. We have multiple positions available for various skill sets which may include the following: Oracle, Siebel, C++, Crystal Reports, Sybase, DB2, Visual Basic, MSAccess, PL/SQL, COBOL, JCL, CICS, Java, COGNOS, PowerBuilder, XML, ASP, HTML on UNIX, Solaris, LINUX and Windows NT operating systems.

All positions require the minimum of a Bachelor's Degree or U.S. equivalent along with one (1) year of experience in the position of software engineer, programmer analyst, software programmer, systems analyst, consultant or a related/ equivalent occupation. **Positions require extensive travel and/or relocation.**

Highly competitive salary offered (between \$52K and \$59K). Send resumes to Delaware Department of Labor, Division of Employment and Training, 4425 North Market Street, P.O. Box 9828, Wilmington, DE, 19809-0828. Please refer to Job Order # DE 205314.

A global software development company headquartered in Newark, DE is seeking Advanced Software Engineers for Multiple Openings.

Duties include: Research, design and testing of software applications. We have multiple positions available for various skill sets which may include the following: Oracle, C++, Crystal Reports, DB2, Visual Basic, MSAccess, PL/SQL, SQL Server, COBOL, Java on UNIX, Solaris, and Windows NT operating systems.

All positions require the minimum of a Bachelor's Degree or U.S. equivalent along with two to three (2-3) years of experience in the position of software engineer, programmer analyst, software programmer, systems analyst, consultant or a related/ equivalent occupation. **Positions require extensive travel and/or relocation.**

Highly competitive salary offered at \$84K. Send resumes to Delaware Department of Labor, Division of Employment and Training, 4425 North Market Street, P.O. Box 9828, Wilmington, DE, 19809-0828. Please refer to Job Order # DE 205261.

PROGRAMMER/ANALYST to analyze, design, develop, test, implement and support web-based client/server application software using C++, Java, HTML, XML, JSP, Servlets, EJB, CORBA, RMI, WebLogic, WebSphere Servers, Oracle and DB2 on AIX-UNIX and SUN Solaris platforms. Require: B.S. degree in Computer Science/Engineering, or a closely related field with 2 yrs of exp in the job offered or as a Software Engineer. Extensive travel on assignment to various client sites within the U.S. is required. Competitive salary offered. Apply by resume to Ravi Kandamallai, Everest Computers Inc., 875 Old Roswell Road, Ste E-400, Roswell, GA 30076. Attn: Job GB.

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Duties include: Research, design and testing of software applications. We have multiple positions available for various skill sets which may include the following: Oracle, Siebel, C++, Crystal Reports, Sybase, DB2, Visual Basic, MSAccess, PL/SQL, COBOL, JCL, CICS, Java, COGNOS, PowerBuilder, XML, ASP, HTML on UNIX, Solaris, LINUX and Windows NT operating systems.

All positions require the minimum of a Bachelor's Degree or U.S. equivalent along with one and a half (1.5) years of experience in the position of software engineer, programmer analyst, software programmer, systems analyst, consultant or a related/ equivalent occupation.

Positions require extensive travel and/or relocation. Highly competitive salary offered between \$54K and \$56K. Send resumes to Delaware Department of Labor, Division of Employment and Training, 4425 North Market Street, P.O. Box 9828, Wilmington, DE, 19809-0828. Please refer to Job Order # DE 205265.

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All positions require the minimum of a Master's Degree or U.S. equivalent along with one (1) year of experience in the position of software engineer, programmer analyst, software programmer, systems analyst, consultant or a related/ equivalent occupation. **Positions require extensive travel and/or relocation.**

Highly competitive salary offered at \$84K. Send resumes to Delaware Department of Labor, Division of Employment and Training, 4425 North Market Street, P.O. Box 9828, Wilmington, DE, 19809-0828. Please refer to Job Order # DE 205259.

COMPUTER/IT Program Manager, Software Engineering. Req. Master's degree in Eng. or Comp. Sci. and 3 yrs of software engineering experience. All stated experience must include utilizing each of the following: C++, Visual Basic, C#, JD Edwards ERP system and CMM Level 2. Plan, direct and coordinate the activities of team of software developers responsible for utilizing the Capability Maturity Model for Software (CMM) Level 2 to identify the key practices required to assess and improve BE&K's software processes. Send Resumes to: D. Brasher, Job Reference #002, BE&K Engineering Company, 2000 International Park Drive, Birmingham, Alabama, 35243.

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Structured systems analysis, design, development, modification, testing, quality assurance, implementation, integration, maintenance and support of large volume online complex integrated client-server based financial and human resource management application systems in a multi hardware/multi-software environment using centralized or distributed Relational Database Management Systems (RDBMS) such as DB2, Oracle, Sybase, SQL Server, SQL Base and related software. Bachelor's Degree (or equivalent) in Computer Science/Math/Engineering Science/Business-Commerce and 1 yr. experience in job offered or as Programmer Analyst/Systems Analyst are required. Must have appropriate combination of skills as follows: 1 of A and 3 of B. A includes PeopleSoft Financials, PeopleSoft Human Resource Management and B includes PeopleTools, PeopleCode, SQR, and Reports. COBOL: High mobility preferred. 40 hrs/week, 8 am - 5 pm, \$66,533 - \$78,000 per year. Qualified applicants should contact or send resume to: BECS/ CareerLink Program Supervisor, Indiana County CareerLink, 300 Indian Springs Road, Indiana, PA 15701. Refer to Job Order # WEB 444189.

Information Specialist (Miramar, FL) - Design, construct, test and implement applications for sales, revenue and reservation systems in the transportation industry using Java and COBOL in UNIX, MVS and Windows environment; apply CMM level 3 practices and SQL software development life cycle methodology to develop software; collect, define and organized detailed user requirements through interaction with customer; define scope, plans and deliverables for projects; enter program codes into computer system. Requires Bachelors in Electrical Engineering in Computer Science and either 4 yrs exp in job offered or 4 yrs exp in designing and constructing applications for sales, revenue and reservation systems in the transportation industry using Java and COBOL in UNIX. Salary \$65,000/yr. Mon-Fri, 8AM-5PM, 40 hrs/wk. Send resume to Workforce Program Support, P.O. Box 10869, Tallahassee, FL 32302-0869, refer to J.O. # FL-2543510.

CONSULTING SERVICES ENGINEER to study and analyze business processes of client companies to optimize efficiency of their transportation and supply-chain resources. Develop large scale logistics decision support systems and cutting edge decision tools using scientific analysis, mathematical models and algorithms, as well as computer skills including Visual Studio.NET, VB.NET, ASP, SQL, XML, ASP.NET, .NET, MS MapPoint, MS Source Safe and Remote Administration on Windows 2000/XP/NT platforms. Develop and maintain database architecture for business object representation and distributed processing using SQL Server 2000. Design and test highly-efficient complex database objects including stored procedures, functions, triggers and constraints. Require: M.S. degree in Computer Science, an Engineering discipline, or a closely related field with 2 yrs of exp. in the job offered. Extensive travel on assignment to various client sites within the U.S. is required. Competitive salary offered. Apply by resume to: Manoj Madhavan, Hybrid Solutions, Inc., 4600 Avocet Drive, Norcross, GA 30092. Attn: Job SK.

IT PROFESSIONALS NEEDED MindTree Consulting, an established and expanding IT consulting company offering product realization services to Internet infrastructure and device vendors, is searching for qualified IT professionals to join its growing team. Presently, we have positions for Technical Architects, Software Consultants (systems analysts, P/As, Soft. Enggs.). Experience with Cisco Router, Compaq servers, Implemented Checkpoint network security firewalls, Rational Rose, iPlanet Webserver, Sun Microsystems' J2EE architecture desired. Qualified applicants will have a bachelor's degree in a relevant field and/or qualifying industry experience. Positions may require relocation to various client sites throughout the United States. Qualified applicants submit resumes to HR Department, The Tower at 270 Davidson Avenue, Suite 305, Somerset, NJ 08873.

Senior Software Engineer to lead a team in the design, development, implementation, testing, maintenance, test-supporting application software in a client/server environment using object oriented programming, Oracle, Java, J2EE, JSP, Servlet, JDBC, EJB, J2C, JMS, JAAAS, HTML, XML, UML, RDBMS, Struts, JavaScript, MS-Project, WSAD, and WAS under UNIX and Windows operating systems. Supervise and mentor junior programmers. Require: B.S. degree in Computer Science, an Engineering discipline, or a closely related field with five years of progressively responsible experience in the job offered or as a Systems Analyst. Extensive travel on assignments to various client sites within the U.S. is required. Competitive salary offered. Send resume to Sophie Mockeys, President SPI, 3901 Roswell Road, Suite 134, Marietta, GA 30062. Job: JR

PROGRAMMER ANALYST - Consult with client to determine technical requirements, evaluate client's existing software, hardware and operating systems and analyze to determine necessary changes and modifications. Develop necessary programming applications using tools such as VISUAL BASIC, VISUAL FOXPRO and SQL. Salary \$57,449.60/yr., 40 hr. work wk. (\$5.00 an hr. to 5:00 p.m.). Requirements: B.A. in Engineering or Computer Science & One yr. Experience Programmer Analyst to include development of client programming using VISUAL BASIC and SQL Employer Paid Ad. Send resumes to MDCD, P.O. Box 11170, Detroit, MI 48202-1170 (Ref #212196).

Director of Engineering (with Masters and 4 years experience or Bachelors with 8 years experience) - St. Louis, MO. Job entails and requires experience in project management and design and development of applications using Java, VC++, VB, .Net, Java2D, CORBA, COM, Adobe Postscript, and Adobe PDF. Relocation within USA possible. Attractive compensation package. Send resume to Rod Zimmerman, Dynalivery Corp., 320 Westport Plaza, Suite 205, St. Louis, MO 63146.

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Please forward your resume to Computer Sciences Corp., Attn: J. Le, 2100 E. Grand Ave., Mail Code A209, El Segundo, CA 90245. Please indicate the specific job title and location for which you are applying.

Database Administrator, Ft. Lauderdale, FL. Define & administer database organizations, standards & procedures using RDB, VMS, SQL Server, Java, J2EE, WebSphere, XML, Visual Basic, Cold Fusion, DHTML, & Rational. Must have Bachelor's Degree in Computer Science & 3 yrs. exp. in job offered or with all phases of software development life cycle. Mail resume to ref #220, HR-Program, Spherion Corporation, 2050 Spectrum Blvd., Ft. Lauderdale, FL 33309.

Abbott Laboratories seeks qualified Systems Analysts, Database Administrators, Applications Programmers, Software Engineers and Software Specialists with experience in one or more of the following technologies: SAP, ABAP, BASIS, RDBMS, SUN UNIX, Solaris, Oracle, AS/400, PL/SQL, Visual Basic, C/C++, Windows, UNIX, SAS, HTML, XML, Java, JSP, JavaScript, Documentation, LAN, Lotus Notes. Respond by mail to Abbott Laboratories, Dept. 323, Bldg. AP602, 100 Abbott Park Road, Abbott Park IL 60064-3257. An EOE. Refer to all code: IT-KE.

Software Engineer

Requ: B.Sc. Elec. Eng & 2 yrs exp. Send resume to Jyoti Maewall, Computer Data Circuit, Inc, 69 Milk St, Suite 220, Westboro, MA 01581.

Multiple positions available for computer professionals including Soft. Eng's, Programmers, Jr. Programmers, Systems Analysts, Network Analysts, DBA's, etc. Locations vary. Req'd BS, MS, or equiv. depending on pos. & 1-2 yrs exp. depending on pos. For some positions, we also accept any suitable combination of education, training or experience in lieu of the req. edu. Travel/frequent relocation. EOE. Competitive salary & benefits. Resume to: Pinnacle Talent, Inc, Attn: HR 1919, Midwest Road, Suite 210, Oakbrook IL 60523. Job ID #: FL8-11-04.



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www.hp.com	
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www.itexecutivesummit.com/nc	
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ACTONA TECHNOLOGIES INC. 22
ADVANCED FIBRE
COMMUNICATIONS INC. 8
ADVANCED MICRO DEVICES INC. 10
AIRSPACE INC. 10
ALCATEL 25
AMERICAN POWER
CONVERSION CORP. 7
AMERVAULT CORP. 22
APPLE COMPUTER INC. 10
APPLIMATION INC. 9
ARUBA WIRELESS
NETWORKS 19, 20
ASIGRA INC. 22
AT&T CORP. 22
AUSIM PRODUCTS INC. 6
BALTIMORE TECHNOLOGIES INC. 6
BATESVILLE CASKET CO. 11
BECKER & POLAKOFF PA. 12
BENDERSON DEVELOPMENT CO. 1
BERN'S HEMATOLOGY-ONCOLOGY
ASSOCIATES LTD. 27
BETRUSTED INC. 10
BLUESOCKET INC. 9
BRITISH SKY BROADCASTING
GROUP PLC. 8
BROCADE COMMUNICATIONS
SYSTEMS INC. 22
BRUNSWICK CORP. 1

BURTON GROUP 12, 19
CANGEMINI 42
CAPITAL ONE FINANCIAL CORP. 32
CARNESIE MELLON UNIVERSITY 24
CEIMER CORP. 27
CERTANCE LLC 26
CHARLOTTE REGIONAL
MEDICAL CENTER 7
CHILDRN'S HOSPITAL
OF PITTSBURGH 27
CHORDANT SOFTWARE INC. 6
CIA 6
CISCO SYSTEMS INC. 19, 22
CITRIX SYSTEMS INC. 22
COMPUTER ASSOCIATES
INTERNATIONAL INC. 8, 10
COMPLWARE CORP. 7
COVELLI FAMILY LLP 7
COVISINT INC. 7
CSC RESEARCH AND
ADVISORY SERVICES 15
CUNY-HOBA
COMMUNITY COLLEGE 21
CYA TECHNOLOGIES INC. 22
DANFOSS A/S 6
DANSKE BANK A/S 12
DISKITES INC. 22
DS3 DATA VAULTING LLC 22
DUKE POWER CO. 1

DUNKIN' DONUTS INC. 19
ECLIPSYS CORP. 27
ELECTRONIC DATA
SYSTEMS CORP. 6
EMC CORP. 9, 22
ENCOMPASS 1
ENTERPRISE APPLICATIONS
CONSULTING 1
ENTERPRISE DEVELOPERS BUILD 1
ENTERPRISE STORAGE
GROUP INC. 22
FBI 6
FIRETRUST LTD. 25
FISERV INC. 12
FISERV LEASING
FISHERY POWER & LIGHT CO. 7
FORD MOTOR CO. 12
FORSYTH SOLUTIONS
GROUP INC. 33
FOUNDSTONE INC. 10
GARTNER INC. 1, 9, 12, 10, 32
GENERAL MOTORS CORP. 6
GLOBAL DATA SYSTEMS USA 8
GOOGLE INC. 15
GOVERNMENT ACCOUNTABILITY
OFFICE 7
GRAFTECH INTERNATIONAL LTD. 1
HANNEMANN UNIVERSITY
HOSPITAL INC. 27
HARBORSIDE
HEALTHCARE CORP. 22
HEALTH MANAGEMENT
ASSOCIATES INC. 7
HEART OF FLORIDA REGIONAL
MEDICAL CENTER 7
HEWLETT-PACKARD CO. 1, 8, 26, 41
HOGAN & HARTSON LLP 22

IBM 8, 10, 12, 32, 41
IEC 10, 12, 22, 32
IIX SYSTEMS CORP. 1
INDIANA STATE UNIVERSITY 32
INSTITUTE OF MEDICINE 27
INTEL CORP. 1, 10
INTERIX 1, 28
INTERNET SECURITY
SYSTEMS INC. 6
INTRADO INC. 6
J.D. EDWARDS & CO. 13
KEY AGENCY INC. 7
LIFE SCIENCES INSIGHTS 10
MACROMEDIA INC. 10
MAFEE INC. 10, 29
MAYESSON CORP. 20
MERCURY INTERACTIVE CORP. 10
MESSAGE LABS LTD. 25
META GROUP INC. 1, 12
METALOGIX INC. 10
MICROSOFT CORP. 1, 6, 10, 12
MOTOROLA INC. 10, 22, 25, 42
NETPROJECT 42
NETSCAPE
COMMUNICATIONS CORP. 12
NETVERSANT SOLUTIONS 10
NETXPERTS INC. 10
NORTEL NETWORKS LTD. 6
ORACLE CORP. 1, 6, 7, 9, 13
OUTERBAY TECHNOLOGIES INC. 9
PANERA BREAD CO. 7
PARTNERS HEALTHCARE
SYSTEM INC. 27
PEOPLESOFT INC. 1, 13
PESTPATROL INC. 10
PRINCETON SOFTCH INC. 9

QUALYS INC. 8
QUEST INTERNATIONAL
USERS GROUP 1
RACKABLE SYSTEMS INC. 10
RIVERBED TECHNOLOGY INC. 22
ROSENBLAW & ENSCHLAG 31
ROYAL CANADIAN
MOUNTED POLICE 6
SANS INSTITUTE 19
SAP AG 1, 6, 12, 13
SARASOTA MEMORIAL
HOSPITAL 27
SCHNITZER STEEL
INDUSTRIES INC. 1
SECURE SOFTWARE INC. 10
SHARE INC. 12
SKY SUBSCRIBERS
SERVICES LTD. 6
SOURCEFORCE.NET 1
SPIRE SECURITY LLC 8
SPRING INDEPENDENT
SCHOOL DISTRICT 19
STANFORD UNIVERSITY 31
STARWOOD HOTELS AND
RESORTS WORLDWIDE INC. 10
SUN MICROSYSTEMS INC. 8, 10, 44
SUNBURST INC. 10
SUTHER HEALTH 27
SYBASE INC. 26
SYNATEC TECHNOLOGIES INC. 23
SYNANTEC INC. 22
TACIT NETWORKS INC. 22
TANJIA GROUP INC. 22
THE ASSOCIATED
MERCHANDISING CORP. 22
THE DOW CHEMICAL CO. 8
THE LEAPFROG GROUP 27

THE READING HOSPITAL AND
MEDICAL CENTER 27
THE SCO GROUP INC. 12
T-MOBILE USA INC. 7
TOTAL SYSTEM SERVICES INC. 12
TRULOGICA INC. 8
TURBOWORX INC. 10
U.S. AIR FORCE 24
U.S. DEPARTMENT OF DEFENSE 24
U.S. DEPARTMENT OF HEALTH
AND HUMAN SERVICES 26
U.S. DEPARTMENT OF HOMELAND
SECURITY 6, 24
U.S. DEPARTMENT OF JUSTICE 1
U.S. NAVY 8
U.S. POSTAL SERVICE 6
UNIVERSIDADE DE BRASILIA 32
UNIVERSITY OF ALBERTA 1
UNIVERSITY OF CALIFORNIA
DAVIS 24
UNIVERSITY OF HOUSTON-
CLEAR LAKE 32
VERANO INC. 22
VERITAS SOFTWARE CORP. 22
VERNIER NETWORKS INC. 19
VILLAGE INN 7
WATCHGARD
TECHNOLOGIES INC. 26
W-I-FI ALLIANCE 19
WORCESTER
POLYTECHNIC INSTITUTE 32

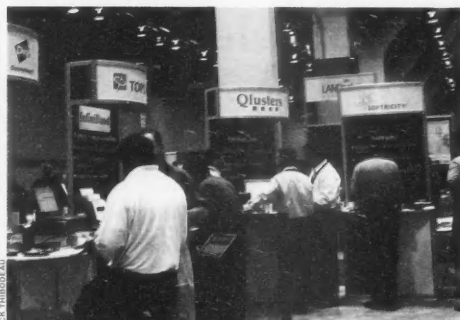
Continued from page 1

HP World

"They haven't shown up yet," Slattery said. Normally, the systems would have arrived within five days, according to Slattery. He said that when they didn't, he called HP and was told the servers were back-ordered.

Slattery added that he didn't know what was causing the shipment delay until he heard HP executives discuss the order-processing problems here at the HP World conference, which was sponsored by the independent Interex and Encompass user groups. "I never put it down to the supply chain mess," he said.

Kees denHartigh had a different type of problem with an HP hardware delivery. A systems and network analyst at the University of Alberta in Edmonton, denHartigh placed an order with HP last spring for new equipment that included Opteron-based servers and a storage array. He said that not one but two deliveries showed up at the school in June, leading him to call HP as well.



HP WORLD attendees check out technology offerings on the show floor.

"They were right upfront about it," denHartigh said. "They were merging the ERP systems between Compaq and HP, and they had some issues with duplication of the whole process. So the order went in at two places." The extra equipment is still boxed, awaiting its return to the vendor, he added.

HP officials have said that the supply chain problems stemmed from a poorly executed migration to a new order-processing system based on SAP AG's ERP appli-

cations [QuickLink 48819].

HP's overall revenue rose 9% in its third quarter, which ended July 31. But its enterprise server and storage business fell 5%, prompting CEO Carly Fiorina to fire three executives because of what she called "unacceptable execution" within that unit.

Mark Gonzalez, vice president of enterprise server and storage sales for HP Americas, said the troubles began over the July 4 weekend, when HP went live with the SAP-based system to replace three order-

processing applications that it had after its 2002 acquisition of Compaq Computer Corp.

"It's systems talking to systems," Gonzalez said. "It just did not quite work out." He added that customers should no longer experience delays on storage products or Unix servers. Processing of ProLiant server orders is "pretty much back on track, with the exception of a couple of complex, configure-to-order type things," Gonzalez said. "The worst is behind us."

At the conference, HP officials were also adamant that the company won't make any changes in its technology direction because of the poor third-quarter results. But that didn't stop users such as Paul Gerke, systems administrator for Clark County in Vancouver, Wash., from voicing concern about the possibility that HP could alter some of its system development plans.

"Quarterly news can change very quickly," said Gerke, who manages HP-UX systems. Referring to HP's decision to phase out its HP 3000 mini-computer line, he said, "You

have to wonder, if we start seeing declining results for Unix, is that the next thing [to go]?"

John Hohenfeld, operations manager at the 55,000-student Cuyahoga Community College in Cleveland, said HP's financial results "made me wonder a little, but I think they are very safe" as a vendor.

Safe for users, perhaps. But when Denys Beauchemin, chairman of Interex's board of directors, opened the floor for questions during a panel session featuring HP executives, he invited attendees to "fire away" with their questions.

That choice of words prompted one HP official on the panel to quickly retort, "Don't fire away," drawing laughter from the audience. **Q 48966**

Robert McMillan of the IDG News Service contributed to this story.

MORE NEWS ONLINE

Offshore customer support and the future of HP-related conferences were also hot topics at HP World.

QuickLink 48879
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HP Exec Blames Server Shortfall on 'Internal Execution Issues'

BY ROBERT McMILLAN AND PATRICK THIBODEAU



When HP missed earnings expectations for its third quarter two weeks ago, the company placed the blame squarely on the shoulders of its Enterprise Servers and Storage division — leading to the sacking of three senior executives within that unit [QuickLink 48813].

Ann Livermore, executive vice president of HP's Technology Solutions Group, manages servers and storage as well as

the vendor's software and IT services units. She spoke with *Computerworld* and the IDG News Service at HP World.

Why did the enterprise computing group lose money in the third quarter? There were really a couple of main areas where we didn't execute as well as we needed to this quarter. In the United States, we were transitioning to a new system and set of business processes for our order management and manufacturing operations, and that transition caused more disruption than we had planned.

In Europe, we had some issues around our channel management processes. We also had, in a few

instances [in Europe, the Middle East and Africa], more aggressive discounting than what we had originally planned for. So the good news — or the bad news — is that they are all internal execution issues we can address ourselves. They're not things that are fundamental weaknesses in our business offerings.

You're getting rid of the Alpha chip and moving from PA-RISC to Itanium. Is there any sense that the decline in sales may be indicative of customers just not wanting to move to Itanium? No. What we're seeing with Itanium is that our quarter-to-quarter ramp is as we've expected. And our Unix

growth last quarter was 8%, which is a good year-over-year growth rate.

When you say Unix growth was 8%, do you mean on Itanium? Unix growth overall.

What was it just on Itanium? You know, I didn't bring with me the specific breakdown in terms of what the PA-RISC growth was versus the Itanium. But the thing we're seeing that we like from an Itanium perspective is that the ISV [independent software vendor] applications and ports are going really well. Our ISV partners have all believed that the migration has been easier than what we planned.

IBM is sticking with its Power architecture, and Sun is sticking with UltraSparc. Is anything in your financial results or in the feedback you get from users giving you grounds for doubt about HP's Itanium-only strategy? No. And we don't have an Itanium-only strategy. From a customer perspective, we have a very simple set of architectures: We have Itanium, and we have x86. A lot of the power of HP from a computing perspective is we do offer both.

McMillan is a reporter for the IDG News Service.

READ MORE ONLINE

An expanded version of this interview can be found on our Web site:

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FRANK HAYES ■ FRANKLY SPEAKING

The Power of No

IT WAS JUST LAST YEAR that the London borough of Newham couldn't afford to upgrade its aging Microsoft Exchange 5.5 server. Then Newham contacted an open-source consulting firm, Netproject, for a study to see whether Linux desktops would be a workable option for the local government. By November, there was a credible Linux plan set for adoption, subject to further negotiations with Microsoft.

Last week, Newham announced a new 10-year, \$9 million deal with Microsoft. The local government that couldn't afford an Exchange upgrade will now get that, plus up-to-date desktop software, plus a batch of tablet PCs for the borough's social workers.

Now *that's* bargaining power.

Officially, Newham's decision was based in large part on a Capgemini study, commissioned by Microsoft, that concluded that Newham would not only save a bundle by staying with Windows, but would also have fewer security problems. Yeah, right.

Unofficially, and much more believably, the deal went down like this: Newham had a viable Linux alternative to Windows (and a lot of press attention for being a highly visible Linux poster child). Microsoft negotiated. Newham ended up with a truckload of goodies that it couldn't afford before.

Pretty slick, eh? True, the Linux advocates say they feel used. They're right — they were used. All the available evidence suggests that Newham's IT boss, Richard Steel, never really wanted to go through the expense and trouble of dumping Windows and all the other Microsoft products Newham was using in favor of Linux and open-source alternatives.

But when Steel went to negotiate the deal with Microsoft, that competing open-source proposal was on the table. It meant Steel could walk away from Microsoft if he had to. He had the power to say no to anything short of the deal he wanted.

Was it a bluff? Only Steel knows, and he's not saying. But Microsoft believed Newham could go with Linux. Microsoft wasn't willing to take that chance. And that got Newham one heck of a deal.

Think you can't possibly get that kind of leverage in your own dealings with software vendors? You're probably right — chances are, you

don't want that much publicity for any IT-related negotiation.

But can you take a few lessons from the Newham deal? Sure.

Start by remembering that if you can't say no, it's not a negotiation. If you can't walk away from the table, you have no leverage at all.

So be sure you always have a viable alternative when you sit down with a vendor. Maybe that means one or more competitors' products. Maybe it means open-source. Or a homegrown system. Or just standing pat. But make sure you can say no.

Then forget about being a nice guy. Use those competitors against one another. Somebody in this deal is going to lose. Make sure it's not you.

Know what you want to get from the deal, what your bottom line is and how much it will take to get you to say yes. But don't say yes until the other guy has run out of things to offer.

Take your time — the Newham deal took months to finalize. Keep upper management in the loop, so you won't be undercut when somebody gets unhappy at how things are going.

And when the time comes, do the deal and damn the consequences. The losers will howl because they lost. The winners will moan because you squeezed them so hard. That's OK — you don't work for them.

For the organization you do work for, you may not get a Newham-size advantage. But if Newham can do it, you can too. And these days, you need all the bargaining power you can get. **48930**



FRANK HAYES, Computerworld's senior news columnist, has covered IT for more than 20 years. Contact him at frank_hayes@computerworld.com.

That Would Explain It

Help desk staffer complains that her voice-over-IP phone calls are breaking up. So the network team puts a sniffer on the line and tracks down something on the network that's using a lot of bandwidth. "The bandwidth hog is listening to an Internet radio station," says a pilot fish on-scene. "And it's the caller's own PC." Her response? "Ohhhhh. I did notice it started about the time I started listening to that radio station."

All Wet

Yes, this user did spill water in his keyboard. But he has dried

it out pretty well, he tells help desk pilot fish. Still, when he tries to type using one of the keys that got wet, the system acts up or reboots. Is it because the keyboard is still damp? "I explained that by hitting a key, he was causing an electrical circuit to close, but because of the water, he was closing multiple circuits and sending bad signals to the computer," says fish. User's reply: "No I'm not. I'm just typing."

The Front Page

This user is furious — information is missing from an inventory report, and she needs it right away. "I stay late into the night poring through code for this complicated application," says programmer pilot fish. "Finally, at 10 p.m., I run the report myself and find that the information she was asking about is in the report." On the first page, in fact. Next morning, fish asks to see the user's copy and discovers that the top page says "2 of 117." "Oh," user tells fish, "I must have left Page 1 on the printer."

SHARK TANK

Idiot? You?

The printer isn't working for this auto mechanic, so

support pilot fish walks him through the usual questions: Is it plugged in? Cable connected to the printer? Any alarm lights? "What, do you think I'm an idiot?" mechanic snaps. Next, fish stops mechanic through the process of printing a test page. Did anything print out? fish asks him. "Not yet," says mechanic. "Let me put paper in it first."

Nope, Not Me

It's the mid-1960s, and this military unit is just starting to send files electronically from base to headquarters. "The only problem was that we had to connect through a switchboard," says a pilot fish who was there. "If the operator would 'plug in' to listen, an error would be generated in the data." Fish explains this to the operator — but the next time his unit sends data, the errors are back. "We called the operator and said that we asked her to not listen in to the transmission," fish reports. "Her reply? 'I didn't listen in! Besides, it was just a lot of beeps and noise anyway.'"

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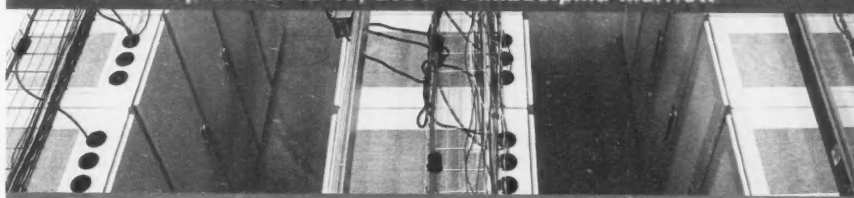
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